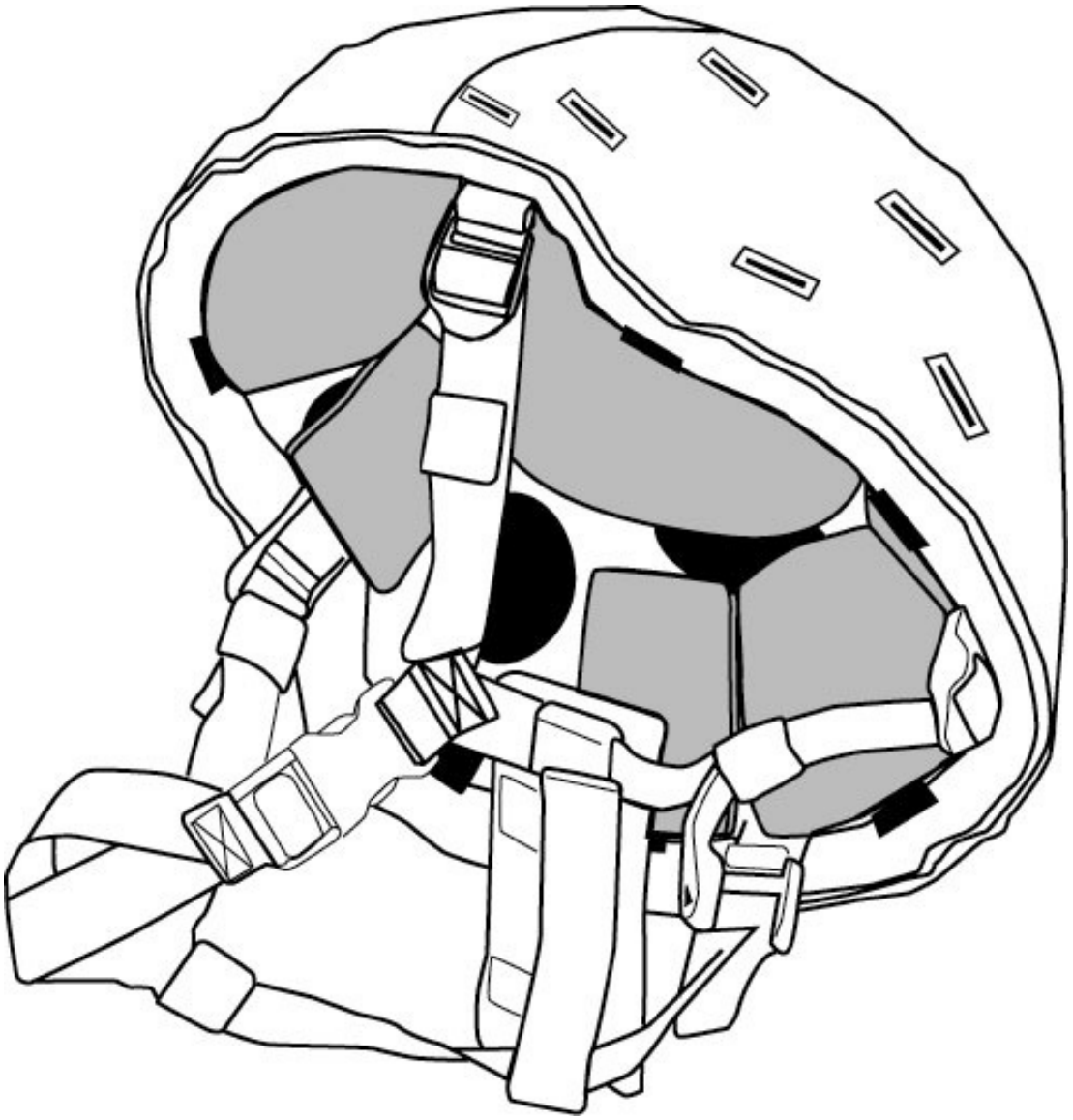
TECHNICAL MANUAL

OPERATOR'S MANUAL FOR

ADVANCED COMBAT HELMET (ACH)



2006 Gentex Corporation

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. **Failure to observe these precautions could result in serious injury or death to personnel**.

⚠ WARNING

All seven (7) helmet pads must be worn at all times. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

⚠ WARNING

The hardware (nut) inside the helmet—where the chinstrap retention system webbing attaches to the helmet shell in four places—must be covered by padding during airborne and other high risk operations such as air assault and rappelling/mountaineering. The pads must be placed flush with the rim (edge) of the helmet and completely cover the hardware—See illustration Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear). Failure to observe this precaution could result in serious injury or death to personnel because a hard point could contact the wearer's head.

⚠ WARNING

If you experience fit problems, tightness/looseness, or helmet profile is too high or too low, refer to Sizing and Fitting Troubleshooting guidelines.

⚠ WARNING

When donning the helmet for the first time in a cold environment, it is necessary to wear the helmet for a few minutes or otherwise warm the pads, such as by placing in pockets, so that the pads will conform to the shape of your head. As the pads warm up and conform to the shape of your head, it may be necessary to re-tighten the chinstrap retention system.

⚠ WARNING

If you pull too tightly on any strap —or if you don’t position helmet on head and hold in place with one hand on top of helmet for initial adjustment— the helmet may become uncomfortable and tilted on your head and chin cup may become un-centered.

⚠ WARNING

For first aid treatments, refer to FM 21-11.

TABLE OF CONTENTS

Page

WARNING SUMMARY . . . . . a
HOW TO USE THIS MANUAL iii
GENERAL INFORMATION iv

CHAPTER 1 - DESCRIPTION AND THEORY OF OPERATION

Equipment Description and Data 1
Theory of Operation 10

CHAPTER 2 - OPERATOR INSTRUCTIONS

Sizing and Fitting Instructions 11
Pad Configurations 15
Pad Suspension Adjustment 17
Sizing and Fitting Troubleshooting 20
Donning and Doffing 26
Replacing Retention System 30
Attaching Helmet Cover 32
Installing Front Bracket Assembly Kit 35
Installing Eyewear Retention Strap 39
Configuration for Airborne Operations 42

CHAPTER 3 - MAINTENANCE PROCEDURES

Replacing the Hardware 45
Replacing the Pad Suspension 47
Cleaning Instructions 48
Preventive Maintenance Checks and Services 49

TABLE OF CONTENTS (Continued)

CHAPTER 4 - SUPPORTING INFORMATION

References 53
Components of End Item and
Basic Issue Items Lists 54
Expendable and Durable Items List 57
Tool Identification List 59
Associated and Repair Items List 61

HOW TO USE THIS MANUAL

OVERVIEW

This manual contains operating instructions and maintenance procedures for the Advanced Combat Helmet (ACH).

This manual is divided into the following major sections:

Front Cover. Provides information about the equipment covered by the TM.

Warning Summary. Provides a summary of all warnings that apply throughout the manual.

Table of Contents. Lists chapters and page numbers in order of appearance.

Chapter 1, Description and Theory of Operation. Provides descriptions, equipment data, and theory of operation information.

Chapter 2, Operator Instructions. Provides sizing information, donning information, and operating instructions in both usual and unusual conditions.

Chapter 3, Maintenance Procedures. Provides cleaning and repair instructions and maintenance procedures.

Chapter 4, Supporting Information. Provides reference information, Components of End Item (COEI)/Basic Issue Items (BII) Lists, Associated and Repair Items List, and Expendable and Durable Items List.

ADVANCED COMBAT HELMET
GENERAL INFORMATION

SCOPE

This manual covers the basic fitting and use instructions for the Advanced Combat Helmet (ACH), hereafter referred to as the ACH or the helmet.

LIST OF ABBREVIATIONS/ACRONYMS

Components of End Item (COEI)
Basic Issue Items (BII)
Advanced Combat Helmet (ACH)

END OF SECTION

CHAPTER 1

DESCRIPTION AND THEORY OF OPERATION

FOR

ADVANCED COMBAT HELMET (ACH)

ADVANCED COMBAT HELMET
EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The ACH is a helmet system that provides ballistic and impact protection. This system is compatible with the current night vision goggles (NVGs), communications packages, and nuclear, biological, and chemical (NBC) defense equipment and body armor.

The ACH provides ballistic protection within the full spectrum of operational environments.

The ACH allows maximum sensory and situational awareness for the operator. This includes an unobstructed field of view and increased ambient hearing capabilities.

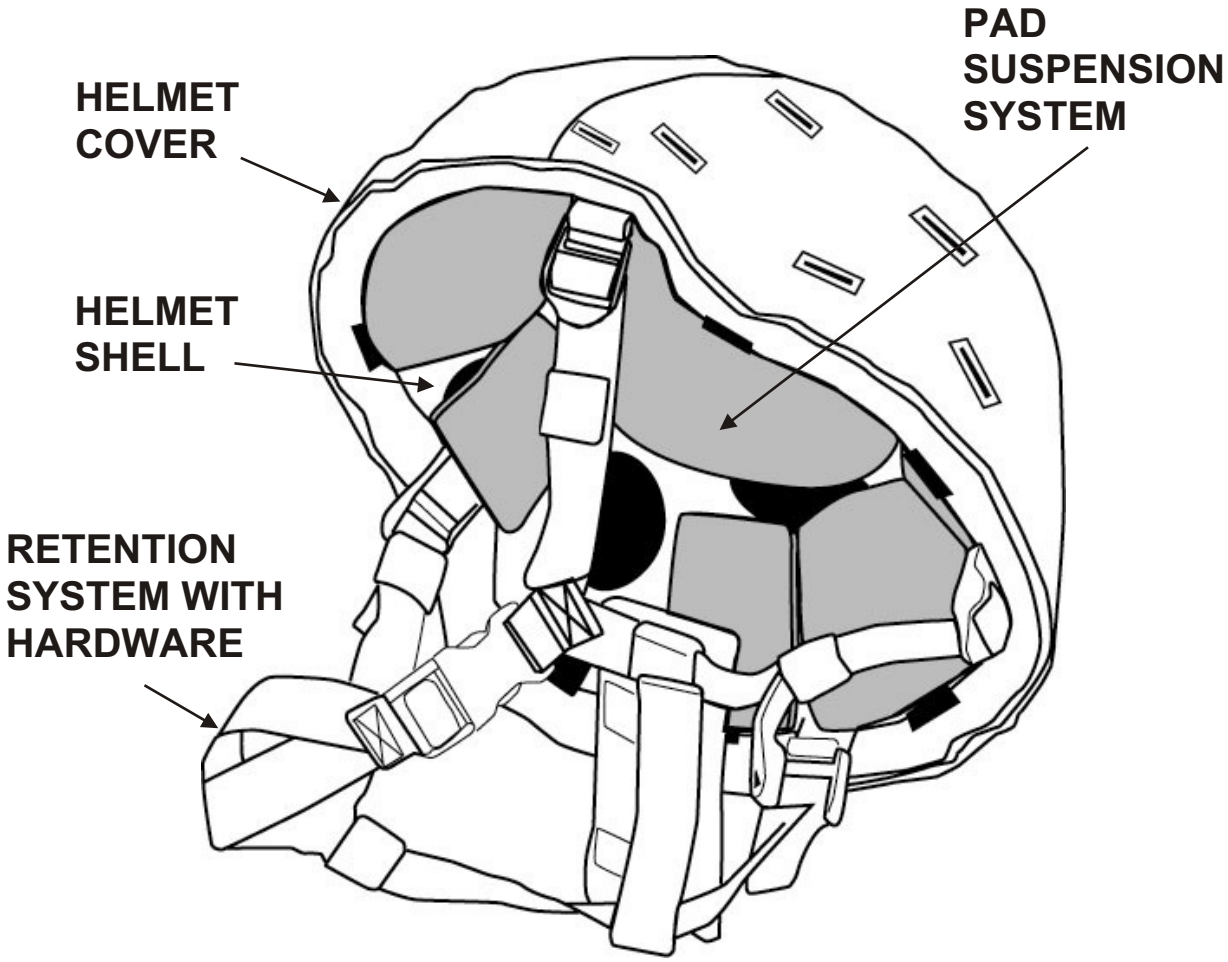
The ACH's chinstrap retention system and pad suspension system provides unsurpassed balance, stability, and comfort. This system provides for proper size, fit, and ventilation.

The ACH's pad suspension system provides impact protection throughout all operational scenarios, including static-line airborne operations.

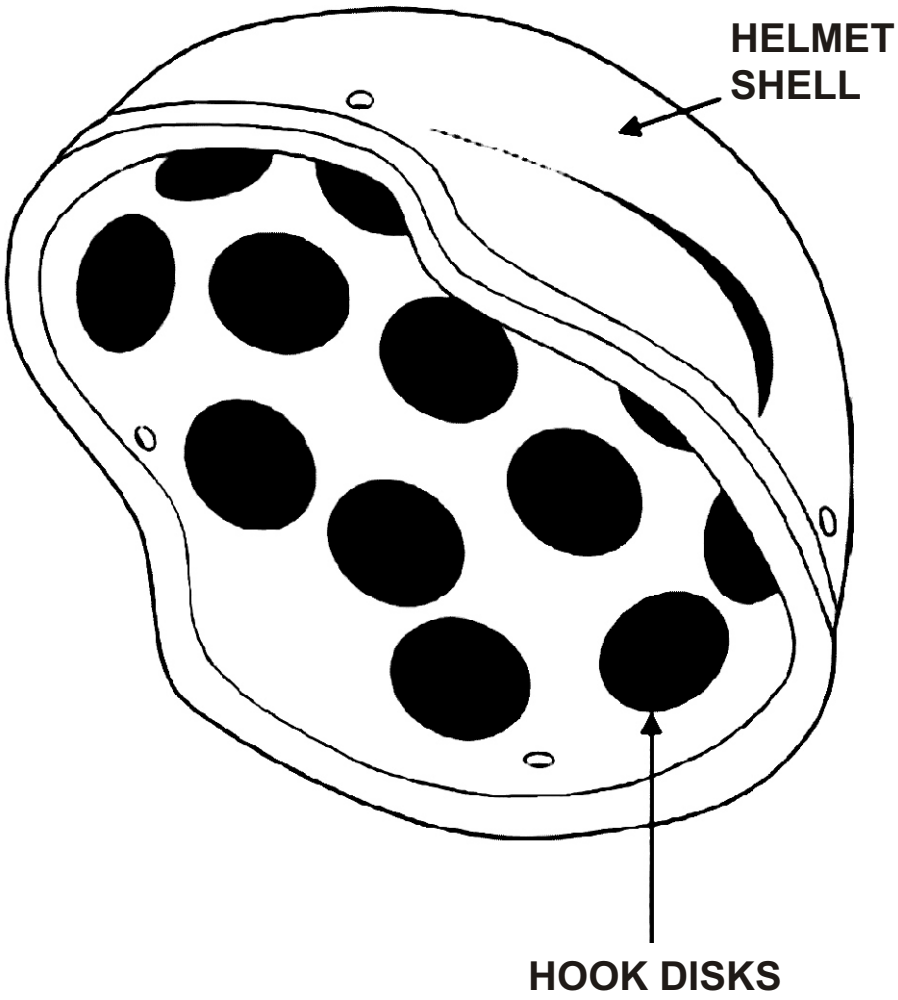
DESCRIPTION OF MAJOR COMPONENTS

The Advanced Combat Helmet is made up of the following major components, which are illustrated below:

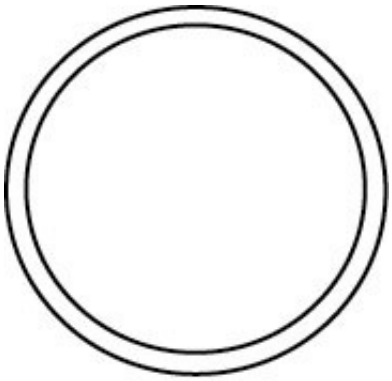
- helmet shell
- pad suspension system
- retention system with hardware
- helmet cover
- eyewear retention strap (not shown)



Major Components

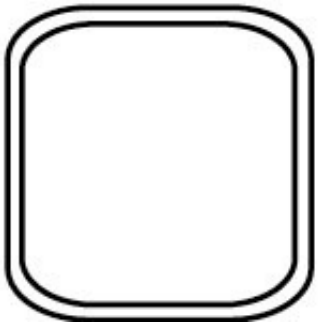


Helmet Shell



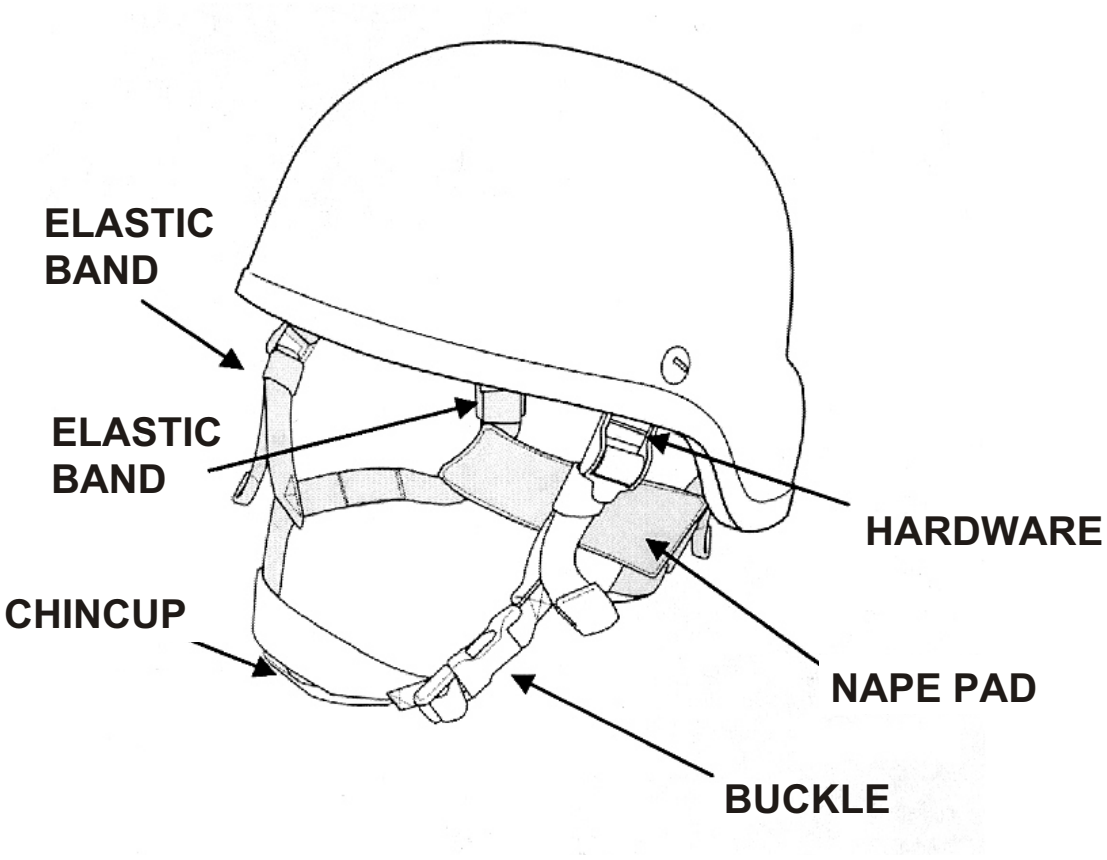
CROWN PAD
(1 IN HELMET)

OBLONG/OVAL PAD
(4 IN HELMET)

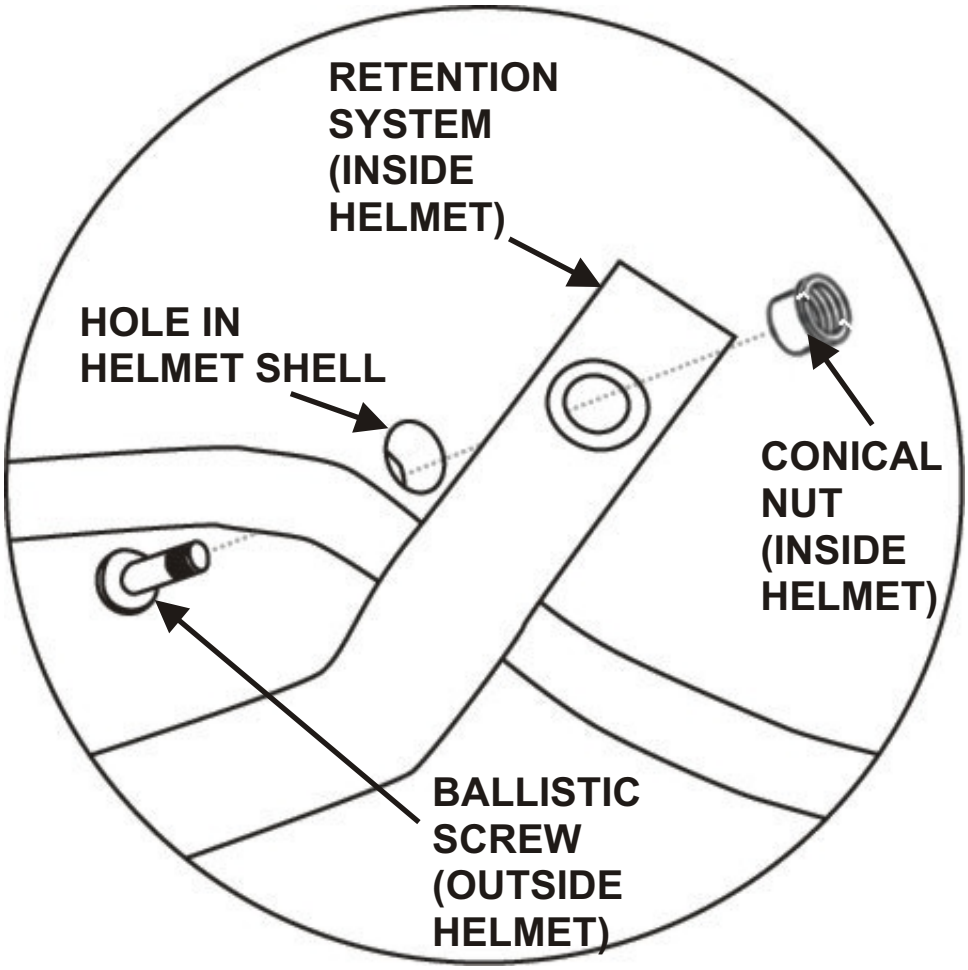


TRAPEZOIDAL PAD
(2 IN HELMET)

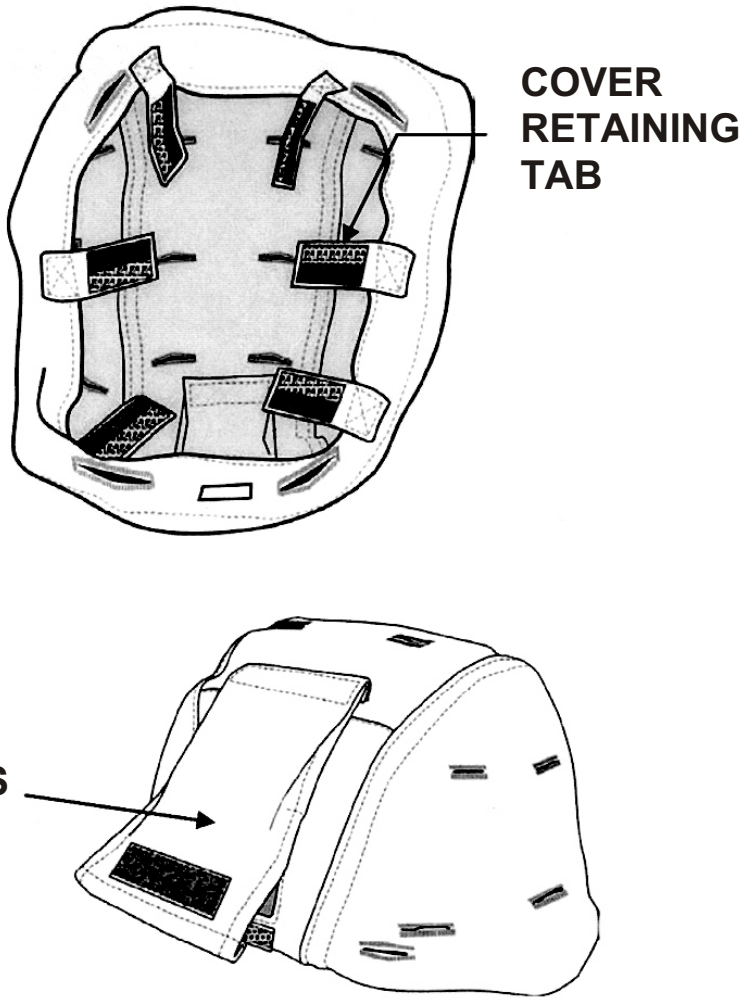
Pad Suspension System



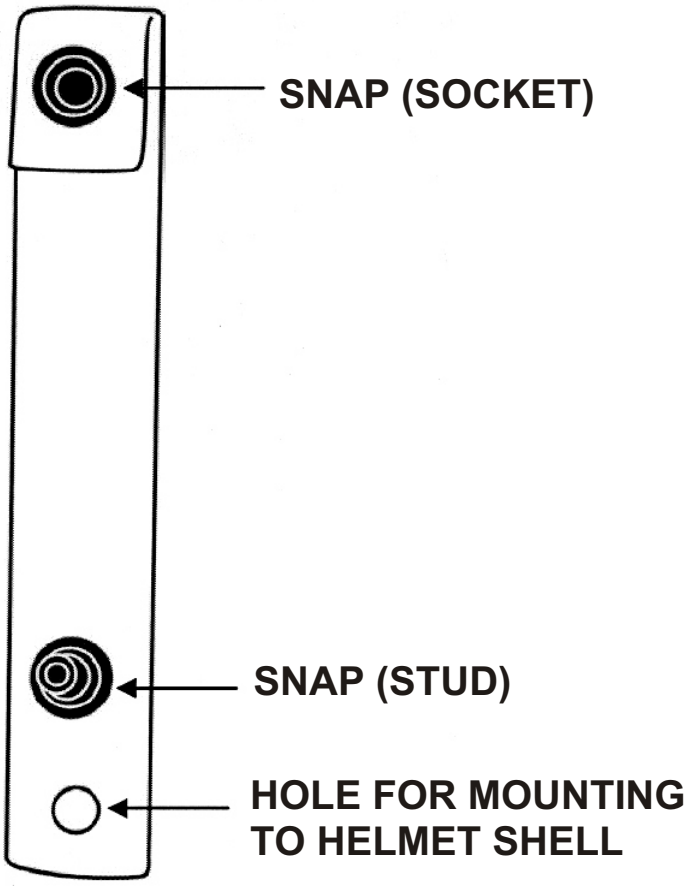
Retention System


RETENTION
SYSTEM
(INSIDE
HELMET)
HOLE IN
HELMET SHELL
CONICAL
NUT
(INSIDE
HELMET)
BALLISTIC
SCREW
(OUTSIDE
HELMET)

Hardware



Helmet Cover



Eyewear Retention Strap

The following are used in certain operations:

- chemical protective cover
- helmet band

END OF SECTION

ADVANCED COMBAT HELMET
THEORY OF OPERATION

This section discusses theory of operation and protective qualities of the ACH.

This ACH is designed to provide the soldier with ballistic and impact protection. It is compatible with night vision, communications, and Nuclear, Biological and Chemical (NBC) equipment. The small ACH (without the cover) weighs under 3 pounds, the medium weighs 3 pounds, the large weighs 3.3 pounds, and the X-Large weighs 3.8 pounds.

The edge cut of the shell has been reduced when compared to the Helmet, Ground Troops and Parachutists. This enables better situational awareness through improved field of vision and hearing.

The shell provides ballistic protection. The pads act as a suspension system providing sizing and fitting. In conjunction with the shell, the pad suspension system provides impact protection. In conjunction with the chinstrap retention system, the pad suspension system provides stability.

The chinstrap retention system is a four-point design, attaching to the shell at four locations. In conjunction with the pad suspension system, the retention system with the H-shaped nape pad provides improved stability.

END OF SECTION

CHAPTER 2

OPERATOR INSTRUCTIONS

FOR

ADVANCED COMBAT HELMET (ACH)

OPERATION UNDER USUAL CONDITIONS
SIZING AND FITTING INSTRUCTIONS

This section provides instructions for choosing the proper size ACH.

ACH Shell Sizing

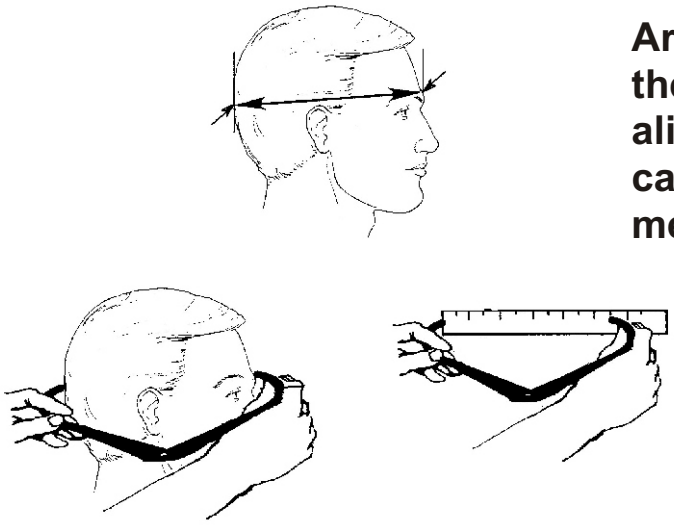
Head Measuring Procedure

Use tape measure and caliper to make the following measurements.

See Chapter 4, Expendable and Durable Items List, for appropriate NSNs.

Step 1. Subject *must* be seated in upright position.

Step 2. Measure head length. Measurement is best made with a caliper and a ruler. If caliper is not available, an approximate measurement can be made using a tape measure aligned with the front and back of head as shown. Record the size measured.

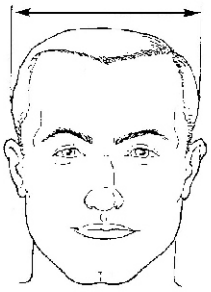


Arrows denote the proper alignment of the caliper or tape measure.

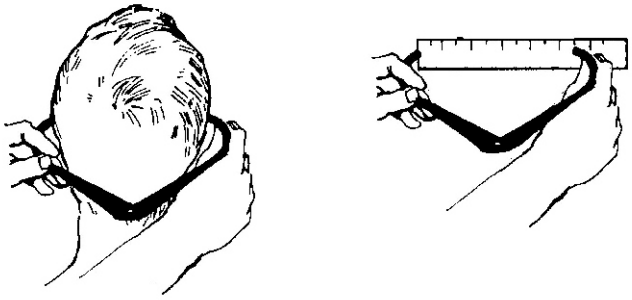
Measuring Head Length

Step 3. Measure head width. Measurement is best made with a caliper and a ruler. If no caliper is available, an approximate measurement can be made using a tape measure aligned with each side of head as shown. Record the size measured.

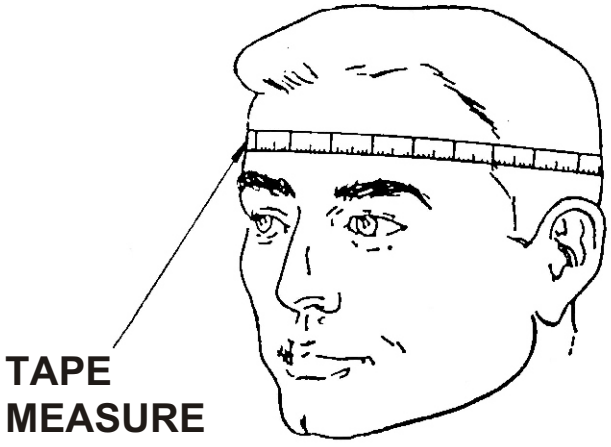
Step 4. Measure head circumference. Record the size measured.



Arrows denote the proper alignment of the caliper or tape measure.



Measuring Head Width



Subject sits erect with head level. Measure circumference by passing tape measure just above the bony eyebrow ridges of the forehead and above both ears. The tape measure must be pulled tight.

Measuring Head Circumference

Step 5. Using the chart below, select the helmet size based on the largest of the 3 measurements. If a measurement falls on the dividing line between the two sizes, select the larger size. This is the proper shell size for the soldier measured.

NOTE

If any measurement falls on the dividing line between sizes, select the larger size.

Head/Shell Sizing Chart

HELMET SIZE	PAD SET	Head Circ.		Head Length		Head Width	
		English inches	Metric mm	English inches	Metric mm	English inches	Metric mm
X-Large	3/4 inch	25.0	636.0	8.6	219.0	6.9	174.0
	1 inch	24.3	616.0	8.4	214.0	6.5	164.0
Large	3/4 inch	23.3	591.0	8.1	206.0	6.3	159.0
Medium	3/4 inch	22.5	571.0	7.8	197.0	6.1	154.0
Small	3/4 inch	21.7	551.0	7.4	189.0	5.9	149.0
	1 inch	20.5	521.0	7.1	180.0	5.5	139.0

ACH Pad Sizing

To select pad size:

1. Assemble helmet in standard pad configuration (see Pad Configuration in Chapter 2). **If other equipment is to be used with the helmet, such as headset/microphone, evaluate size with that equipment (if possible).**

2. Try on helmet and evaluate fit. Proper fit is achieved when the helmet does not sit too high (crown pad does not contact head or too much of forehead is exposed) or too low (too low on brow or not compatible with eyewear, etc.) and is not too tight or too loose (see Sizing and Fitting Troubleshooting in Chapter 2). Shake head rapidly from side to side to check for stability. Helmet should not rotate from side to side when head is shaken. While evaluating fit, be sure to have the chinstrap retention system cinched down.

END OF SECTION

OPERATION UNDER USUAL CONDITIONS
PAD CONFIGURATIONS

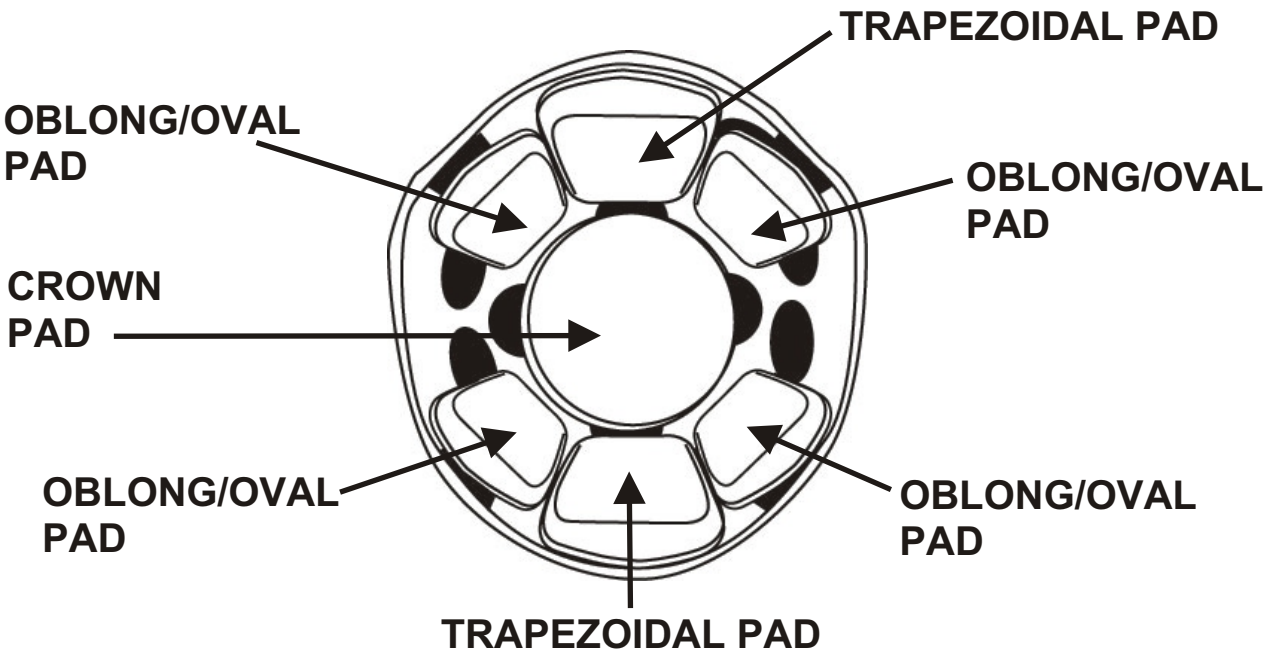
This section provides instructions for different pad configurations.

Standard Pad Configuration

⚠ WARNING

All seven (7) helmet pads must be worn at all times. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

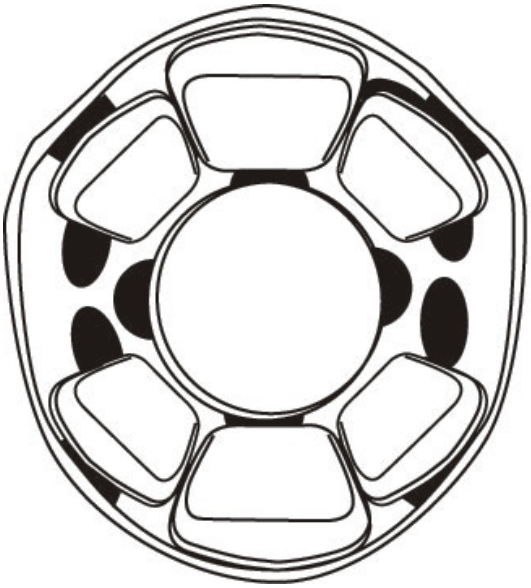
Below is the standard pad configuration, with the pads placed vertically. The pads may also be placed in other directions as described on the next page. See Configuration for Airborne Operations in Chapter 2 for additional information on pad placement.)



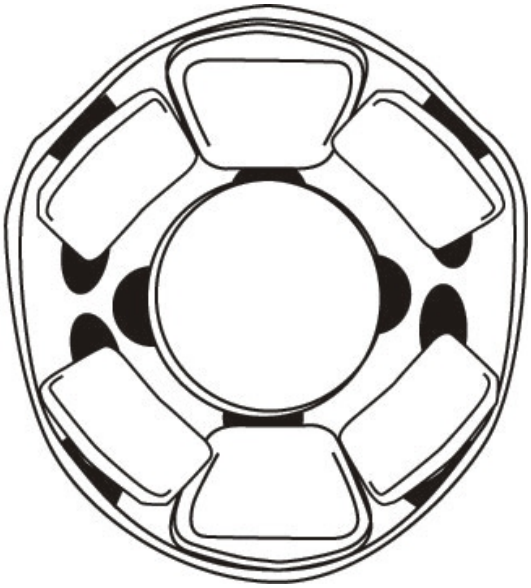
Standard Pad Configuration

Pads can be placed in vertical or horizontal directions (as shown below) or a combination or at an angle between horizontal and vertical (diagonal).

It is best to cover hardware with pads in all situations. However, hardware **MUST** be covered with pads in high-risk situations.



PADS PLACED VERTICALLY



PADS PLACED HORIZONTALLY

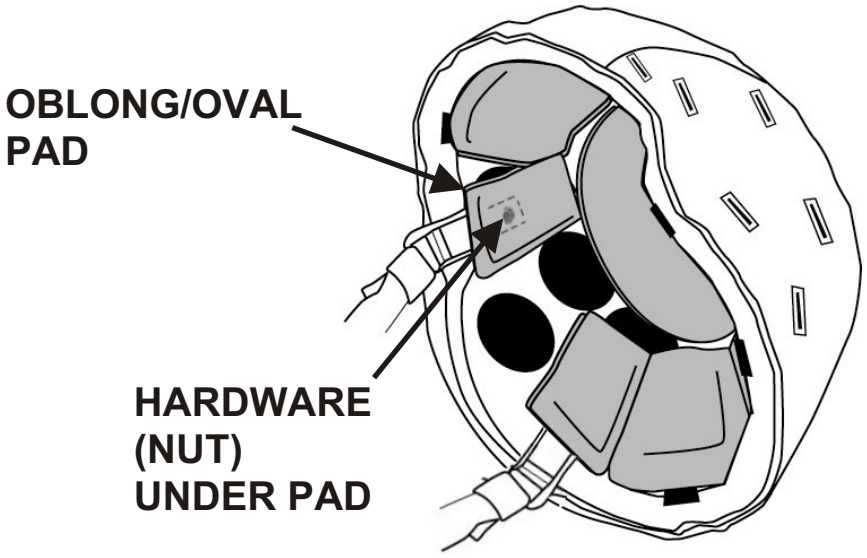
Vertical and Horizontal Pad Placement

OPERATION UNDER USUAL CONDITIONS
PAD SUSPENSION ADJUSTMENT

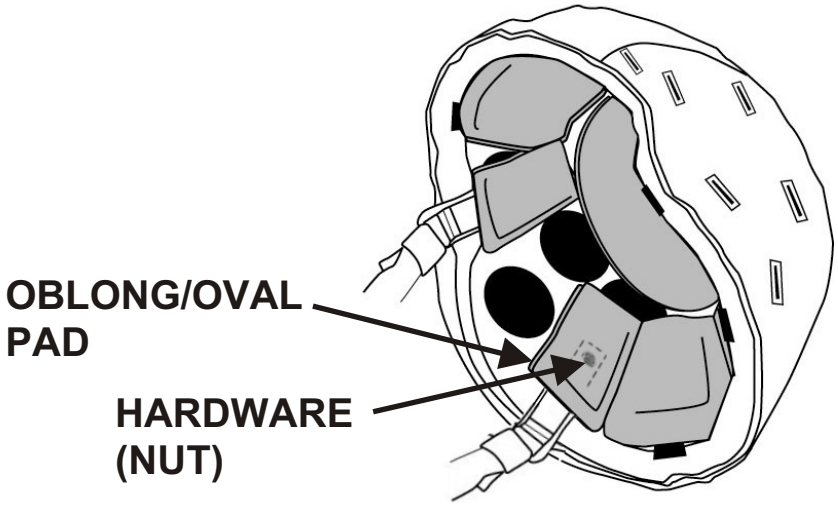
This section provides information about the adjusting the pad suspension system. This unique suspension system is fully adjustable. The system has the following requirements and restrictions:

⚠ WARNING

The hardware (nut) inside the helmet—where the retention system webbing attaches to the helmet shell (in **four** places)—must be covered by padding during airborne and other high-risk operations such as air assault and rappelling/mountaineering. The oblong/oval pad must be placed flush with the rim (edge) of the helmet and completely cover the hardware—See illustration Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear). Failure to observe this precaution could result in serious injury or death to personnel because a hard point could contact the wearer's head.



Pad Placement Over Front Hardware (Two Places)



Pad Placement Over Rear Hardware (Two Places)

⚠ WARNING

All seven (7) helmet pads must be worn at all times. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

⚠ WARNING

If you experience fit problems, tightness/looseness, or helmet profile is too high or too low, refer to Sizing and Fitting Troubleshooting guidelines.

NOTE

When donning the helmet for the first time in a cold environment, it is necessary to wear the helmet for a few minutes or otherwise warm the pads, such as by placing in pockets, so that the pads will conform to the shape of your head. As the pads warm up and conform to the shape of your head, it may be necessary to re-tighten the chinstrap retention system.

NOTE

If you experience hot spots or discomfort, try rearranging the pad system to accommodate a more comfortable fit. If discomfort persists, try resizing your shell. (See Sizing and Fitting Instructions or Sizing and Fitting Troubleshooting, Chapter 2.)

The direction of the side oblong/oval pads may be changed to maximize comfort. These pads may be routed vertically from bolt to crown. This configuration maximizes airflow for better temperature regulation. These pads may be routed horizontally to make a seal around the user's head. This configuration is better suited for cold weather environments. (See Pad Configurations in Chapter 2.)

END OF SECTION

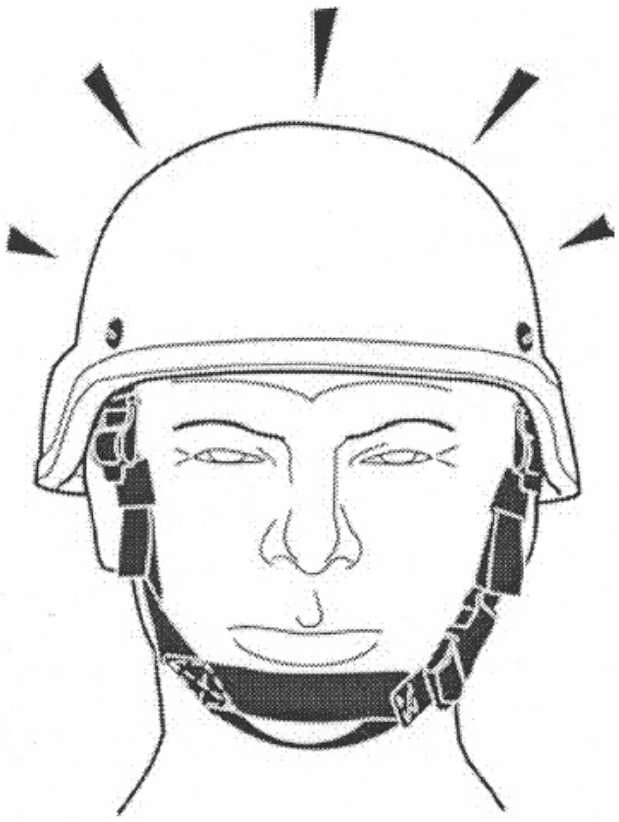
OPERATION UNDER USUAL CONDITIONS
SIZING AND FITTING TROUBLESHOOTING

This section provides sizing and fitting troubleshooting techniques.

1. If helmet is **too tight:**

   - Try arranging side pads in a horizontal configuration or diagonal direction (see pad configuration illustrations in Chapter 2).

   - If rearranging the pads does not alleviate the tightness, try the next smaller pad size.

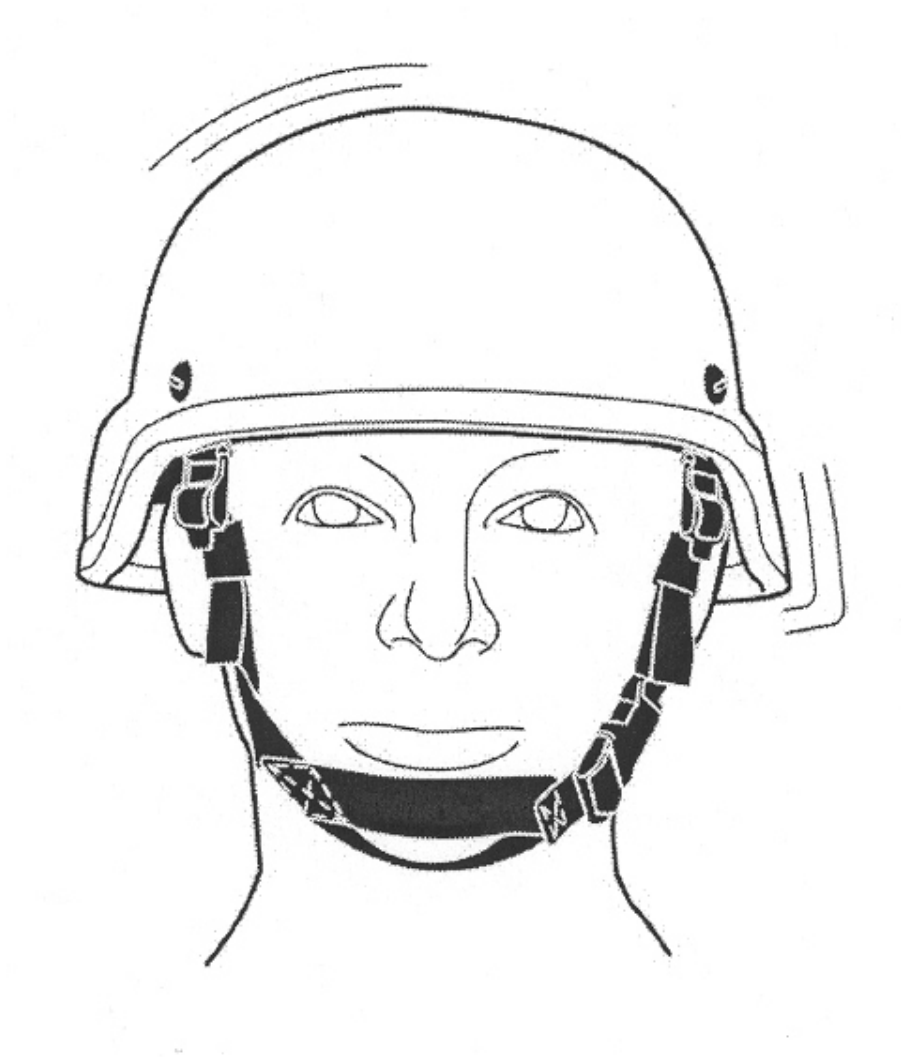


Helmet Too Tight

2. If **too loose** (Shake head from side to side while eyes are closed. If helmet slides on head, it is too loose.)

- Try a larger (thicker) pad set.

- Select the next smaller shell size.



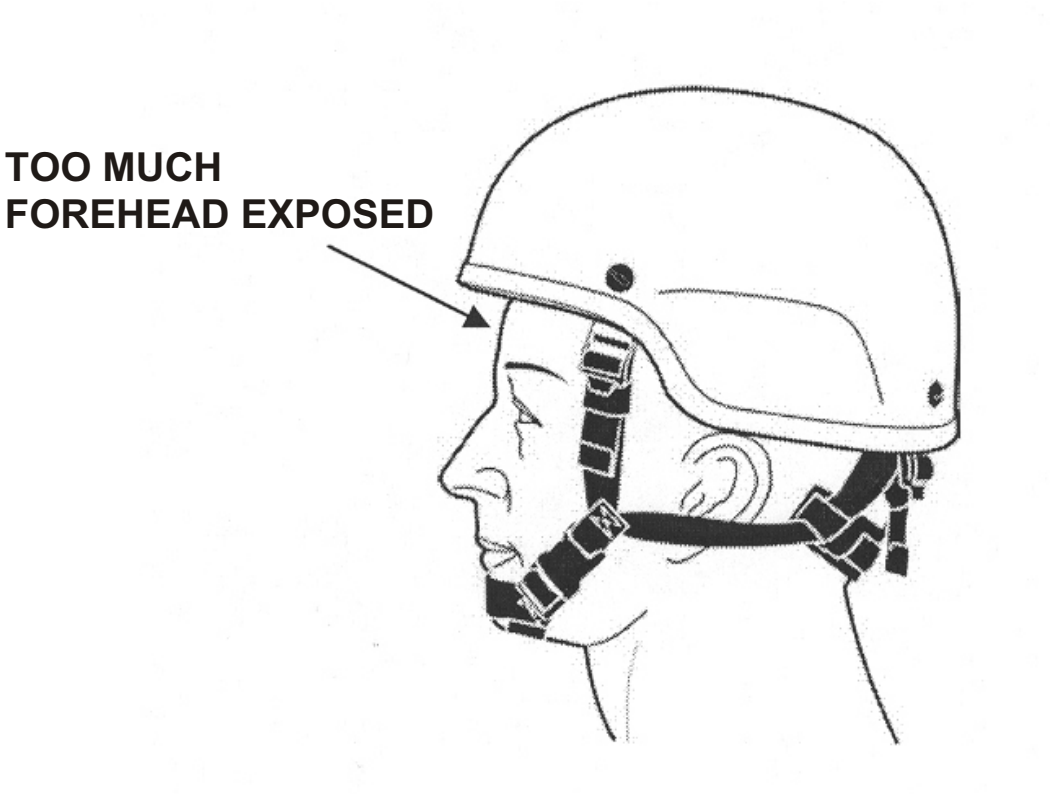
Helmet Too Loose

3. If **too high:** (i.e., too much forehead exposed, crown and does not touch top of head, or wearer does not see edge of rim):

- Try smaller (thinner) sized pad set.
- Try rearranging pads (horizontal or diagonal—see pad configuration illustrations in Chapter 2.)
- Try a larger shell size.

It is extremely important that the helmet not be sized and fitted to sit too high on the head. Here are some things to look for:

If too much of forehead is exposed (approximately more than ½-inch above eyebrow), then the helmet is too high.

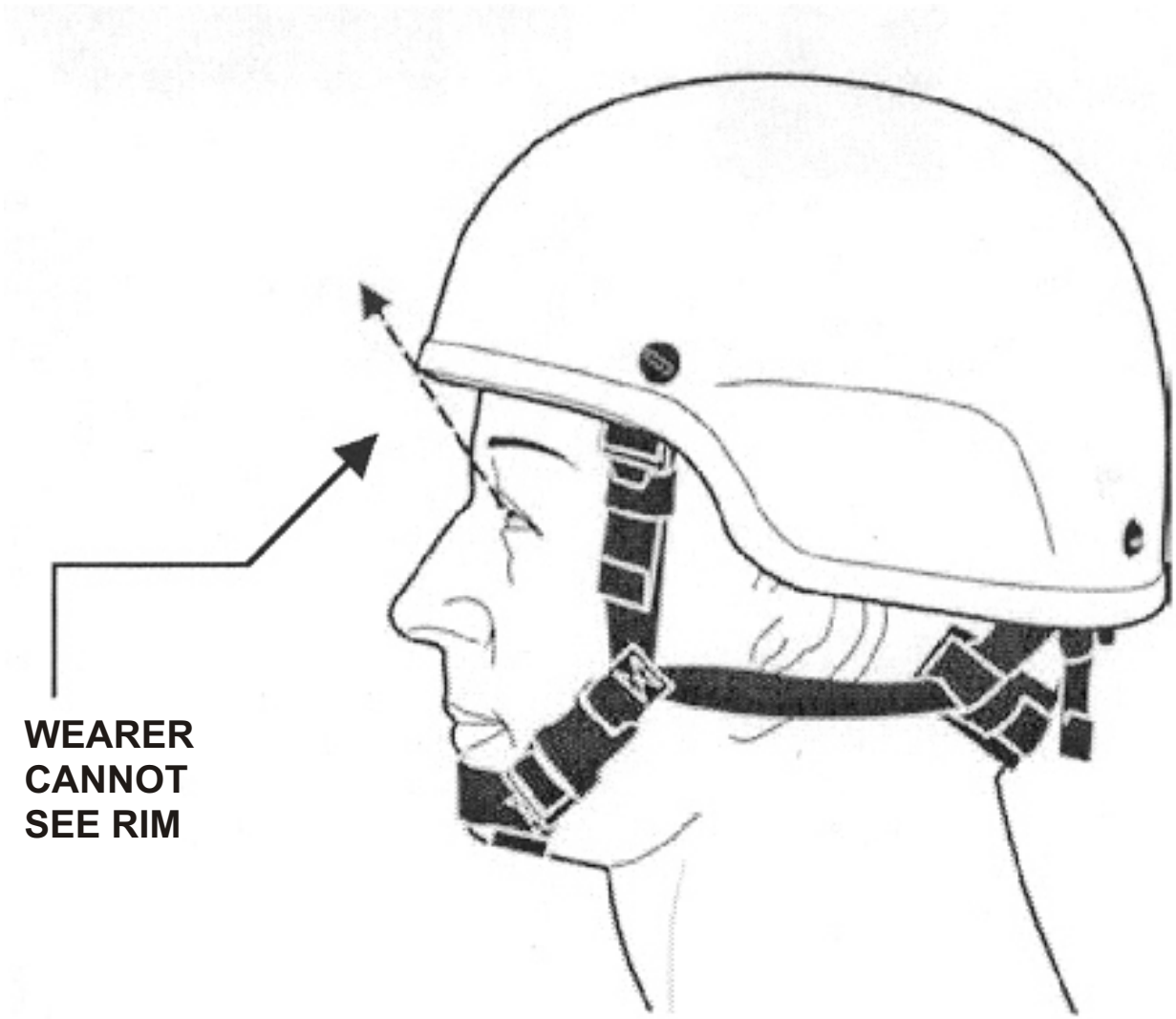


Helmet Too High (Too Much Forehead Exposed)

If crown pad does not hit head (wearer cannot feel pad), then helmet may be too high.

Helmet Too High (Crown Pad Not Touching Head)

When fitting, have subject look upward by moving eyes, but without moving head. If subject cannot see rim of helmet, helmet may be too high.



Helmet Too High (Looking Past Rim)

4. If **too low:** (i.e. helmet too low on brow, helmet not compatible with eyewear, or has other similar compatibility issues)

- Try larger (thicker) pad set.

- Try rearranging pads (horizontal or diagonal—see pad configuration illustrations in Chapter 2.)

Try a smaller helmet shell.

Helmet too low

END OF SECTION

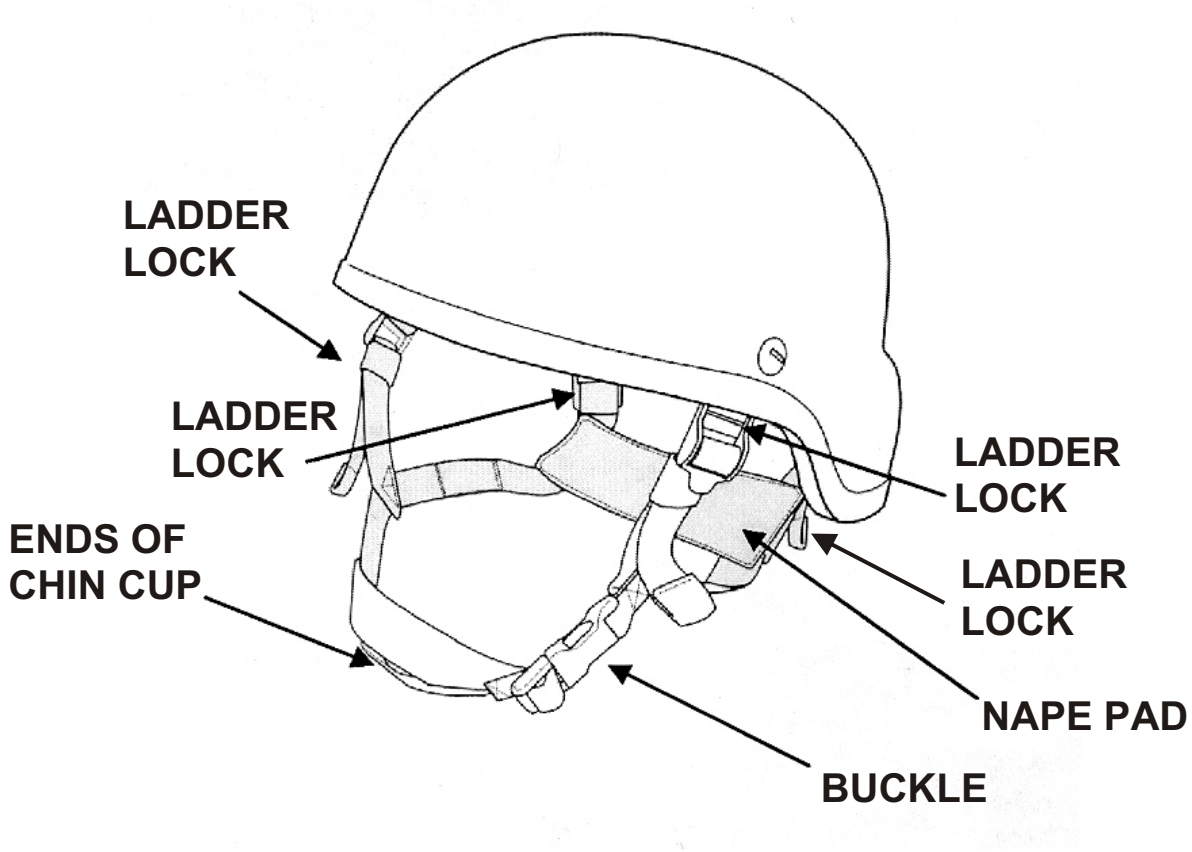
OPERATION UNDER USUAL CONDITIONS
DONNING AND DOFFING

This section provides instructions for donning and doffing the helmet, including adjusting the chinstrap to optimize fit and comfort.

Donning: To don (put on) the helmet:

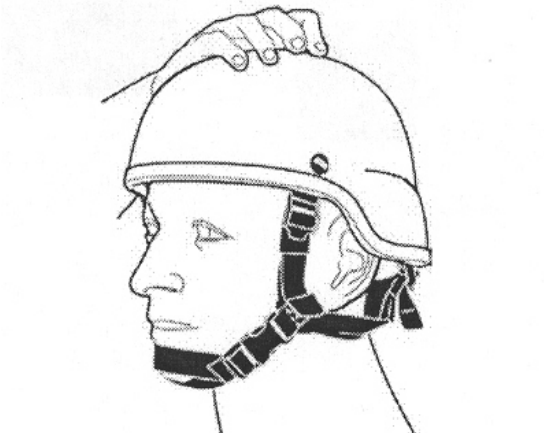
Step 1. Check number and placement of pads— (see pad illustrations in Chapter 2).

Step 2. Prior to donning helmet, loosen all adjustment straps (ends of chin cup, 2 ladder-locks in front, 2 ladder-locks in back, and the nape pad). Unbuckle chinstrap buckle.



Helmet Adjustment Points

Step 3. Position helmet on head and buckle chinstrap. Hold helmet in place with one hand on top of helmet for initial adjustment.

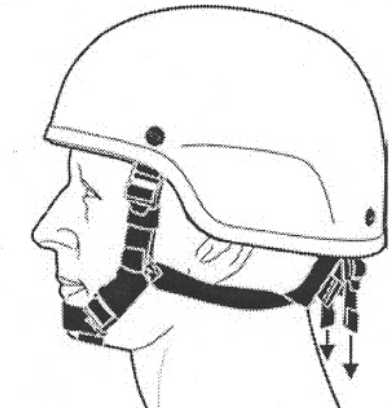


Positioning Helmet on Head

⚠ WARNING

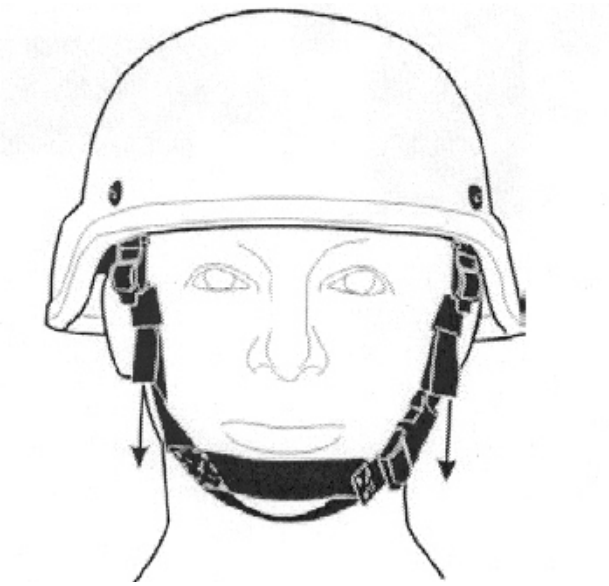
If you pull too tightly on any strap during Steps 4 and 5—or if you don't position helmet on head and hold in place with one hand on top of helmet for initial adjustment as instructed in Step 3—the helmet may become uncomfortable and tilted on your head and chin cup may become un-centered.

Step 4. Partially tighten 2 back adjustment straps (one side at a time).



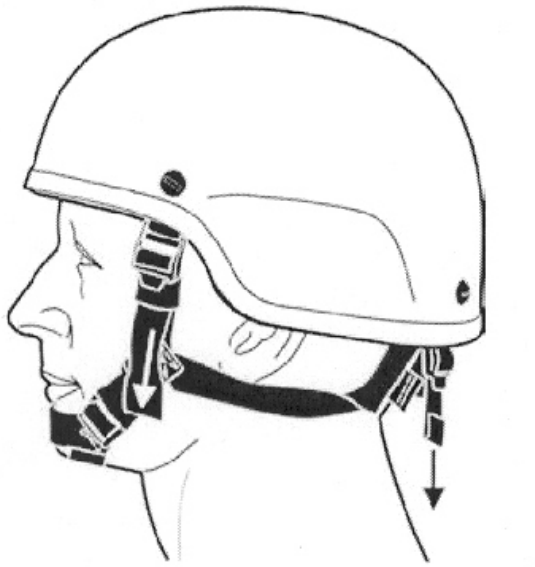
Tightening Back Adjustment Straps

Step 5. Partially tighten 2 front straps (one side at a time) by moving the slides up.



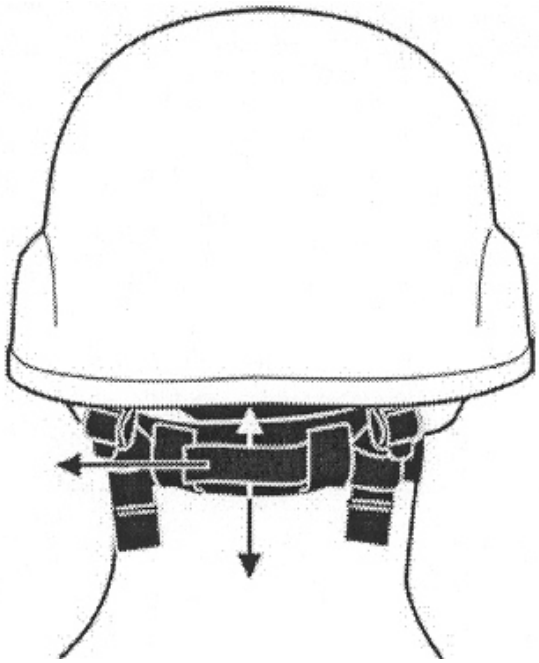
Tightening Front Straps

Step 6. With both hands, fully tighten front and back adjustment straps.



Tightening Front and Back Straps

Step 7. The nape pad can be can be slid up and down along the rear legs of the chinstrap. It can be positioned according to personal comfort. When tightened (see figure below) against the nape by pulling on end of webbing, the nape pad adds additional stability to the helmet such as when wearing NVGs. Keep the nape pad away from the ladder-locks while adjusting the chinstrap to prevent jamming.



Releasing Buckle

Doffing: To doff (remove) the helmet:

To doff the helmet, press the sides of the center section of the buckle on the chinstrap retention system inward. Once the buckle releases, remove the helmet.

END OF SECTION

OPERATION UNDER USUAL CONDITIONS
REPLACING RETENTION SYSTEM

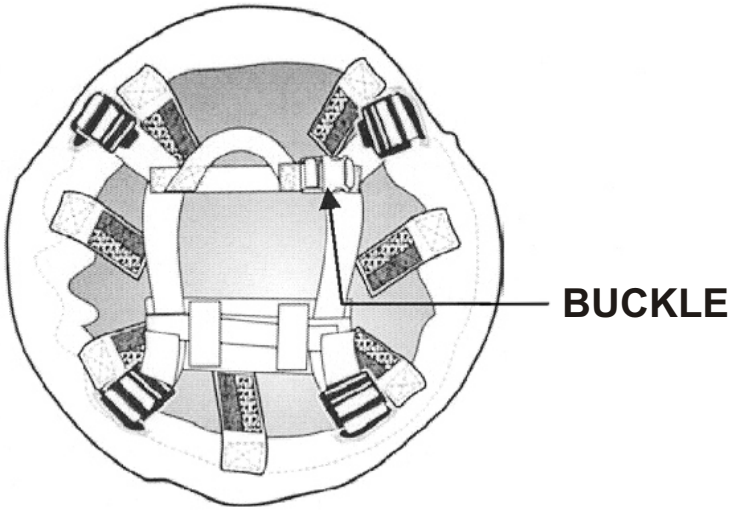
This section provides instructions for replacing the ACH's retention system.

1. Unthread the chinstrap retention system webbing from the ladder-lock.

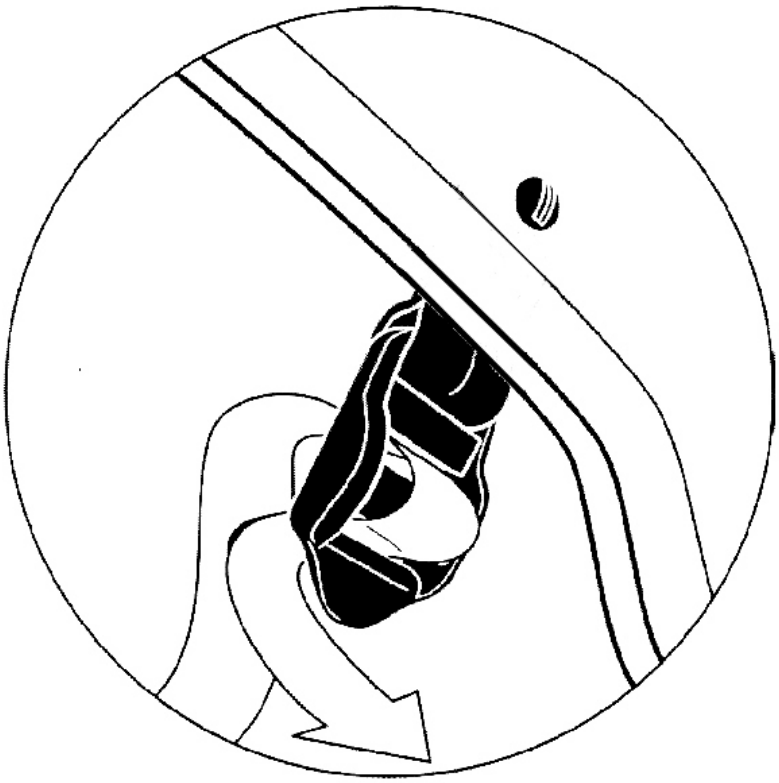
2. Lay the helmet on its crown with the front of the helmet away from you (buckle is located on right side of helmet.) Drape the replacement retention system over the helmet with the nape-strap pad facing down on the back/rear of the helmet (see Chinstrap Retention Orientation illustration below).

3. Insert and thread the four legs of the retention system into their corresponding ladder locks. (See Routing of Retention System Webbing through Ladder Lock illustration on the next page.) For illustration of entire assembled helmet with retention and hardware—please refer to Chapter 1. Take care to ensure that webbing is not twisted.

4. Slide elastic band over loose ends of webbing.



Retention System Orientation



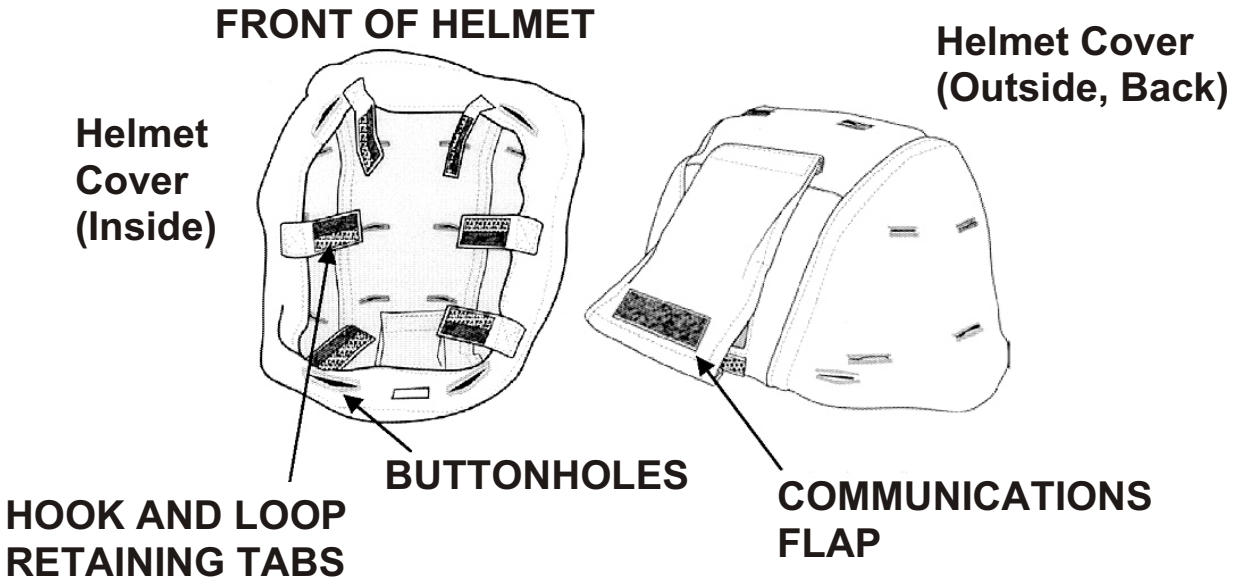
Routing of Retention System Webbing Through Ladder Lock

END OF SECTION

OPERATION UNDER USUAL CONDITIONS
ATTACHING HELMET COVER

This section provides instructions for attaching the camouflage helmet cover to your ACH.

There are two covers available for the ACH: a reversible woodland/desert cover and a white (Artic) cover.



Helmet Cover

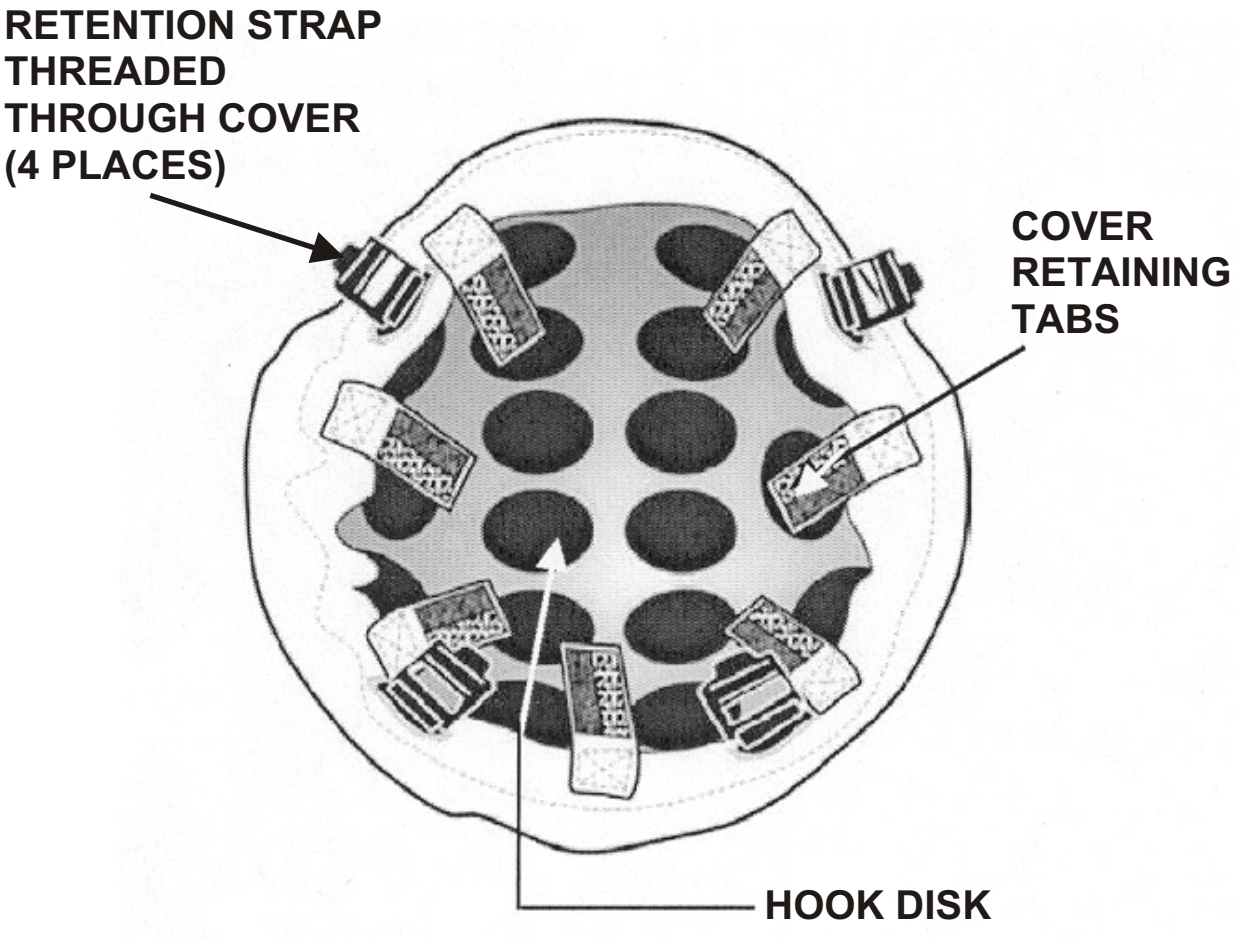
1. Remove the suspension pads from the inside of the helmet shell.

2. Remove the chinstrap retention system webbing (see Chapter 2).

3. Select the camouflage pattern to be worn and orient the cover so that the desired pattern is on the outside if using the reversible cover.

4. Align the label (found on rear of helmet cover) with the rear of the helmet shell.

5. Pull the cover over the back and sides of helmet shell.
6. Thread each ladder-lock through the corresponding buttonhole in the cover.
7. Pull the cover retaining tabs down and attach tabs to hook disks inside helmet shell. Ensure tight smooth fit of cover by pulling the retaining tabs until tight.
8. Place suspension pads back into shell. (See Page 15.)
9. Replace retention system webbing. (See Page 30 for instructions for replacing the retention.)



Helmet Cover Installed

The communications flap is used to store cables from the headset microphone that is sometimes used with the helmet.

The flap can also be used to secure goggle straps if no eyewear retention straps are available. Lift the flap and place the goggle strap under the flap. Re-secure the flap by pressing the hook and loop together.

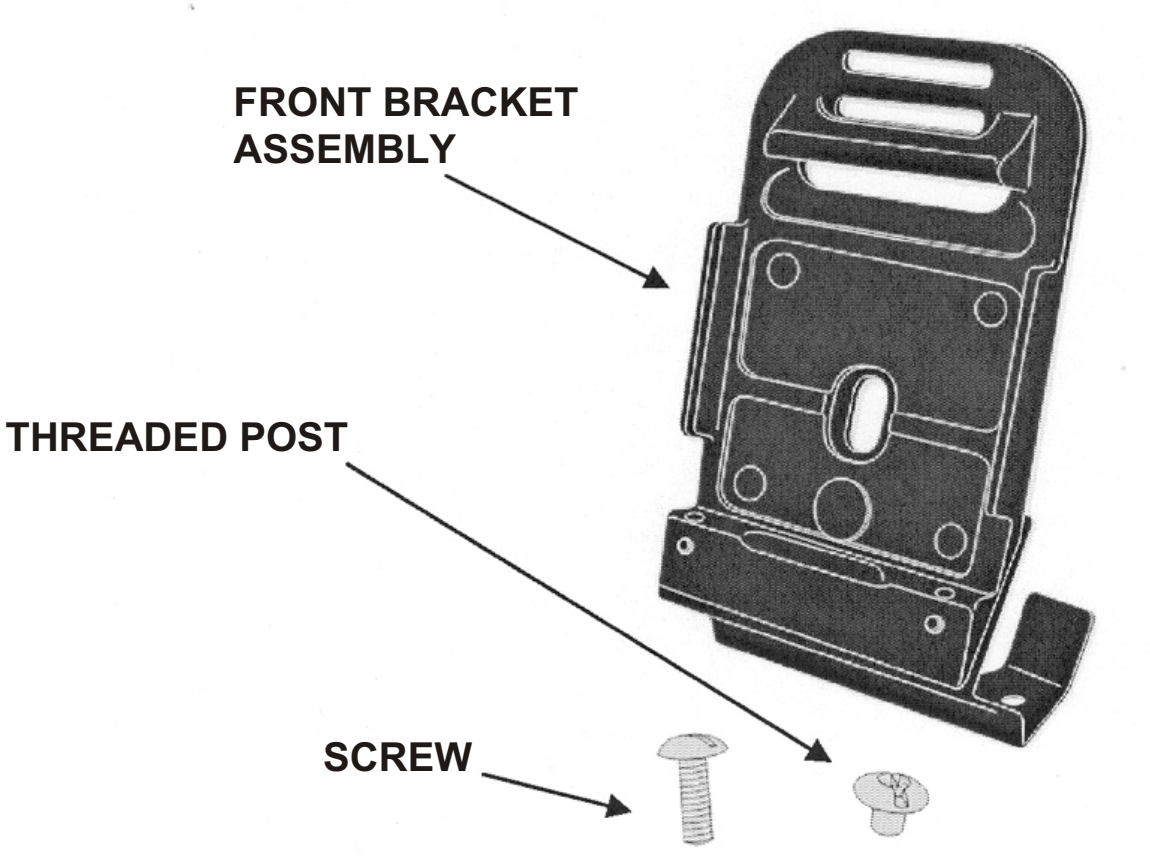
END OF SECTION

OPERATION UNDER USUAL CONDITIONS
INSTALLING FRONT BRACKET ASSEMBLY KIT

This section provides instructions for installing the front bracket assembly kit on the ACH.

1. Make sure that the front bracket assembly kit has all the components. You should have a front bracket assembly, a screw, and a threaded post (see illustration below). See Chapter 4, Associated and Repair Items List, for the appropriate part number.

2. Install the helmet cover on your helmet. See Page 32 for instructions on attaching the helmet cover.



Front Bracket Assembly Kit Contents

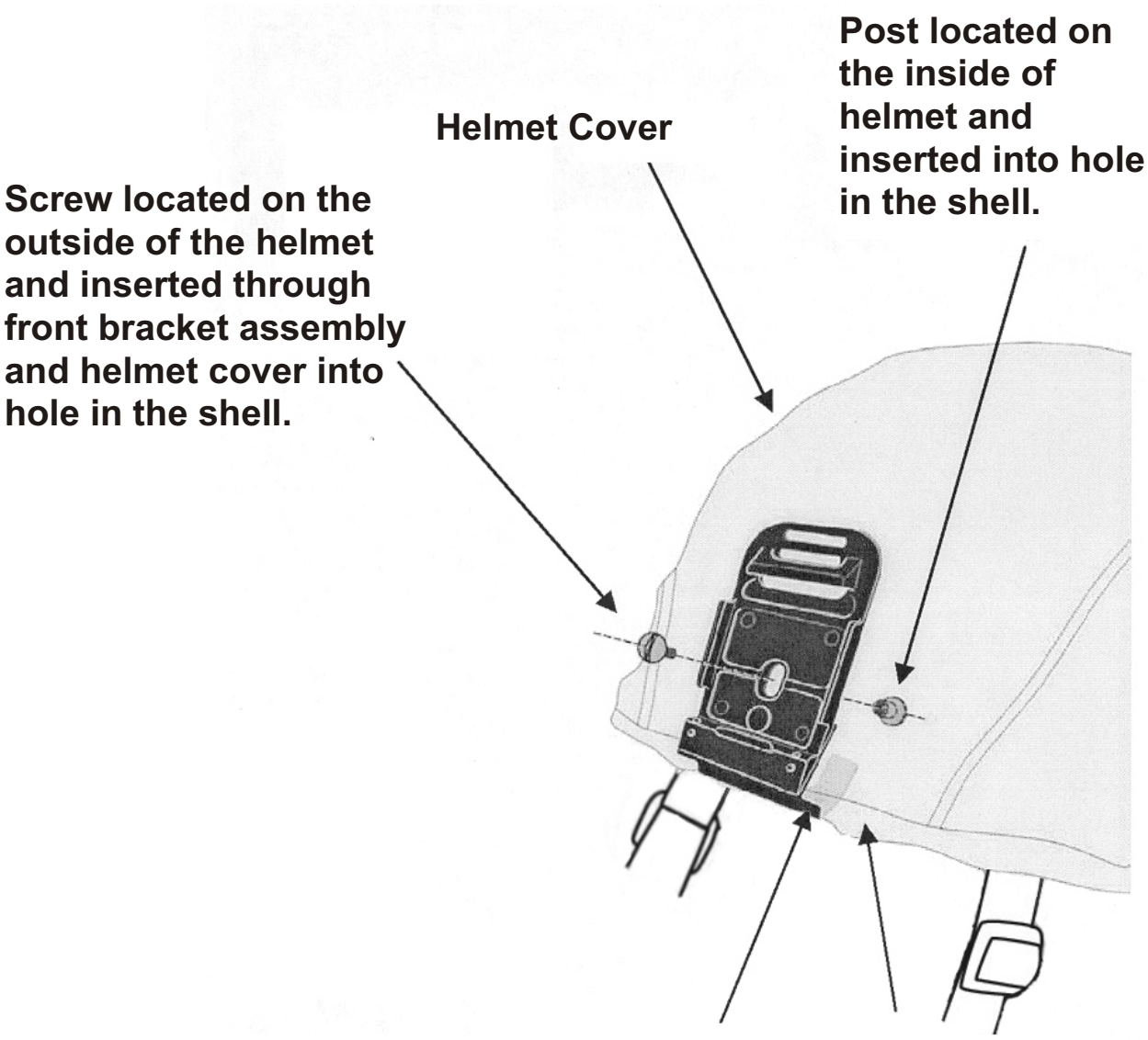
3. Place the front bracket assembly on the helmet over the helmet cover. Line up the hole in the plate, the front buttonhole in the cover, and the hole in the helmet shell (see “Front Bracket Assembly Positioned Helmet” illustration in this section). Move the cover around to line up the buttonhole in the cover.

4. Insert the screw through the front bracket assembly, cover, and into shell from the outside of the helmet. Insert the threaded post from inside the helmet. Start to tighten the screw and post (see “Front Bracket Assembly Positioned Helmet” illustration in this section).

5. Before completely tightening the screw, ensure that the cleat of front bracket assembly is tight against the rim of the helmet (see “Front Bracket Assembly Positioned Helmet” illustration in this section). Push the bracket up so that the cleat is tight against the rim (edge) of the helmet while tightening the screw and post. It may be helpful to have another person assist with this step.

CAUTION

Do not over tighten the screw, or the front bracket assembly may break.


Post located on the inside of helmet and inserted into hole in the shell.
Helmet Cover
Screw located on the outside of the helmet and inserted through front bracket assembly and helmet cover into hole in the shell.

Front Bracket Assembly Positioned on Helmet

NOTE

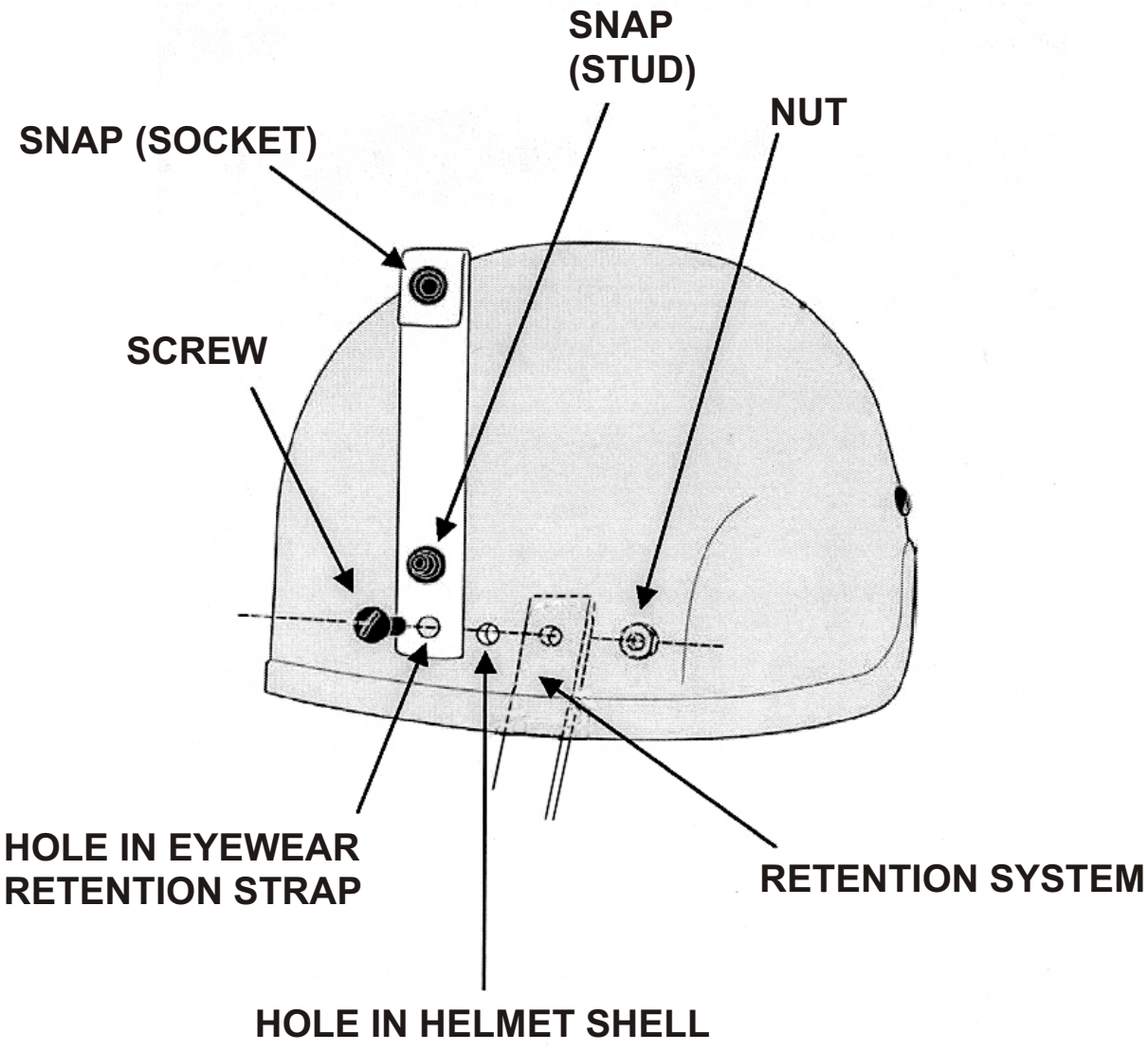
If no NVG Front Bracket is used—and the helmet has a hole for the front bracket—plug the hole with the 8-32 x 3/8 long screw and post. See Chapter 4, Associated and Repair Items List, for the appropriate part number.

END OF SECTION

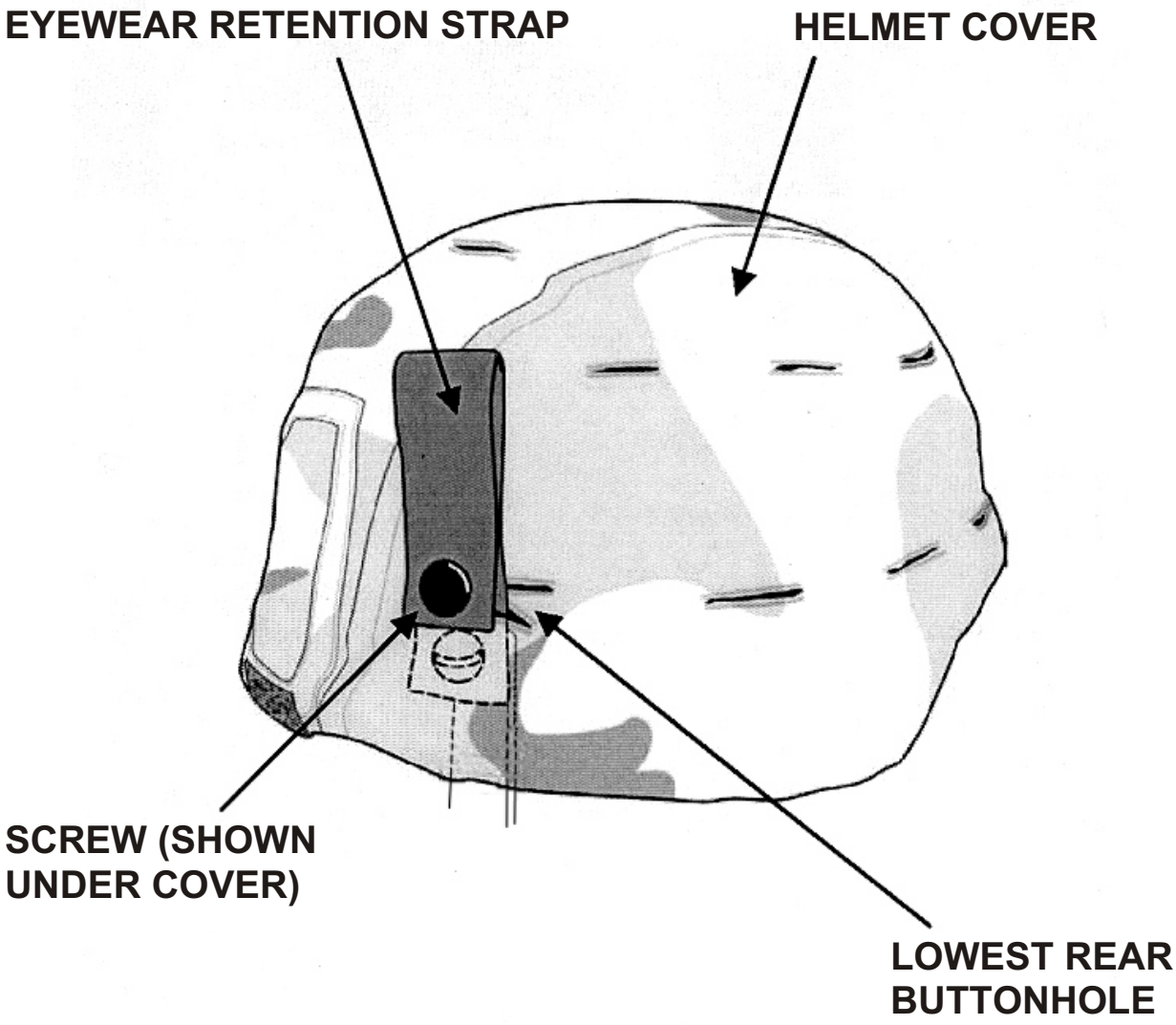
OPERATION UNDER USUAL CONDITIONS
INSTALLING EYEWEAR RETENTION STRAP

This section provides instructions for installing the eyewear retention strap on the ACH.

1. Make sure you have two eyewear retention straps (see Chapter 4, Associated and Repair Items List, for the appropriate part number).
2. If the helmet cover is installed, remove the rear cover retaining tabs and slide the rear half of the cover up to expose the two rear screws. You can also remove the cover completely (see Page 32).
3. Remove one of the two rear screws. Place an eyewear retention strap over the barrel (shaft) of the screw with the snap socket and stud facing away from the helmet. (See Eyewear Retention Strap and Screw Assembly illustration in this section.) A strap is installed on each of the two rear screws.
4. Insert the screw with eyewear retention strap attached into hole in helmet.
5. Place the **retention system** strap and nut (**inside** the helmet) on the screw and tighten to a torque of 80-100 inch-ounces, or until the nut bottoms out on the screw. (See Chapter 3, Page 45, which shows screw and nut installation, for replacing the hardware.)
6. Repeat Steps 3-5 to install the other eyewear retention strap on the other rear screw.
7. Install the helmet cover. While installing the cover, thread eyewear retention strap through lower most rear buttonhole on cover (see Page 33 for attaching the helmet cover). (See Helmet with Eyewear Retention Strap Installed illustration for finished assembly.)



Eyewear Retention Strap and Screw Assembly



Helmet With Eyewear Retention Strap Installed

OPERATION UNDER USUAL CONDITIONS
CONFIGURATION FOR AIRBORNE OPERATIONS

This section provides instructions for configuring the ACH for airborne operations as well as other high-risk operations such as air assault and rappelling/mountaineering. No other parts or components are required for airborne use of the helmet.

⚠ WARNING

The hardware (nut) inside the helmet—where the chinstrap retention system webbing attaches to the helmet shell **in four places**—must be covered by padding during airborne and other high risk operations such as air assault and rappelling/ mountaineering. The oblong/oval pad must be placed flush with the rim (edge) of the helmet and completely cover the hardware—See illustration Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear). Failure to observe this precaution could result in serious injury or death to personnel because a hard point could contact the wearer's head.

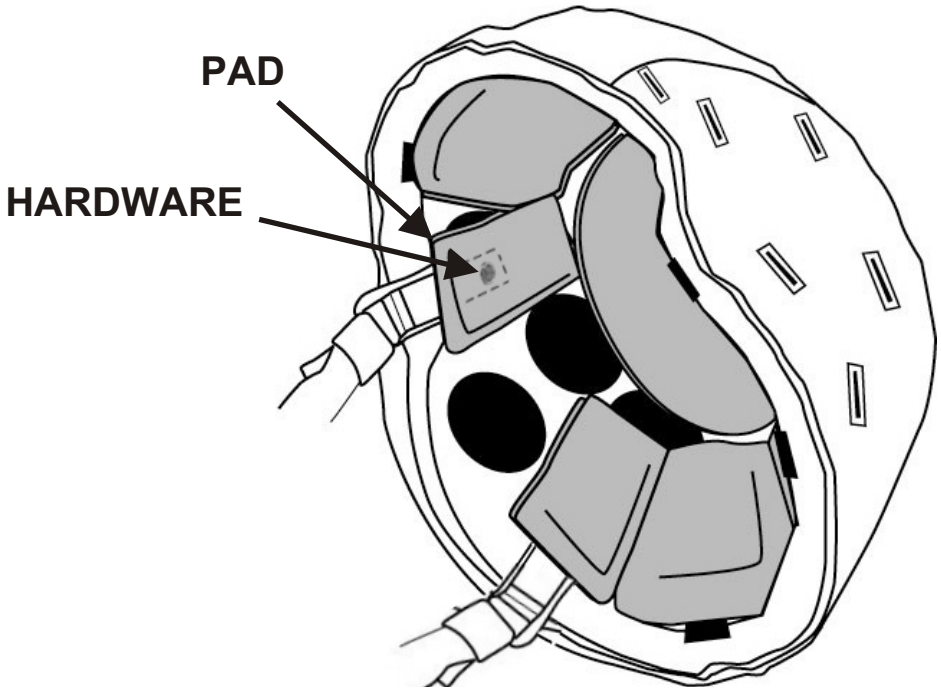
⚠ WARNING

All seven (7) helmet pads must be worn during airborne operations and should be worn during other high risk operations such as air assault and rappelling/mountaineering. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

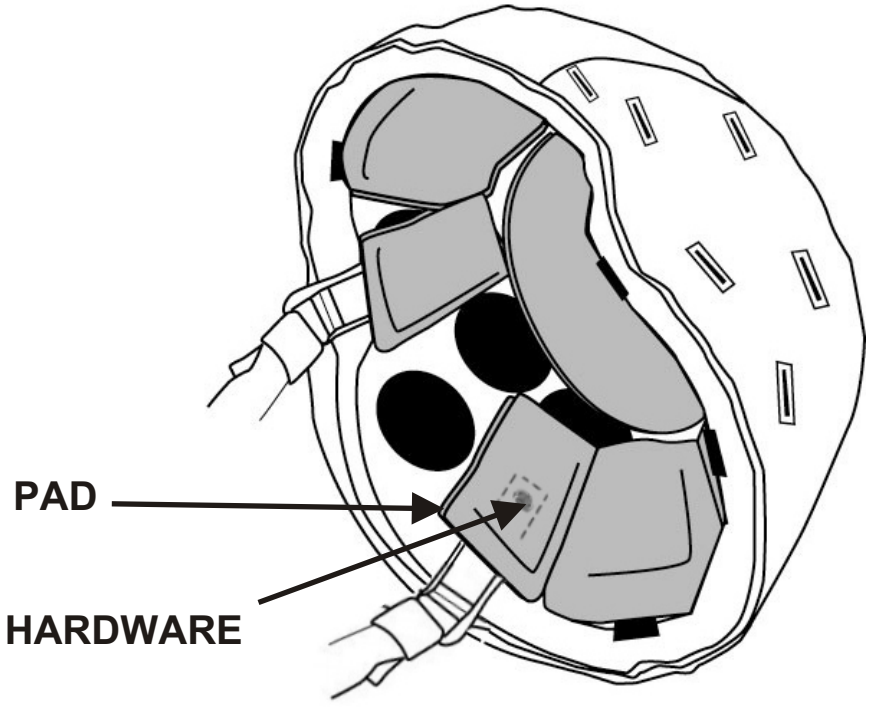
⚠ WARNING

The rear pads must be placed flush with the rim (edge) of the helmet for airborne operations. If you experience helmet rotation during airborne operations the rear pads can be placed so that they extend ½" beyond the rim of the helmet. Placement of the rear pads flush or beyond the rim (edge) of the helmet prevents the hard shell from hitting your neck. (See Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear) illustrations.)

END OF SECTION



Pad Placement Over Front Hardware Hardware (Two Places)



Pad Placement Over Hardware (Two Places)

CHAPTER 3

MAINTENANCE PROCEDURES

FOR

ADVANCED COMBAT HELMET

MAINTENANCE PROCEDURES
REPLACING THE HARDWARE

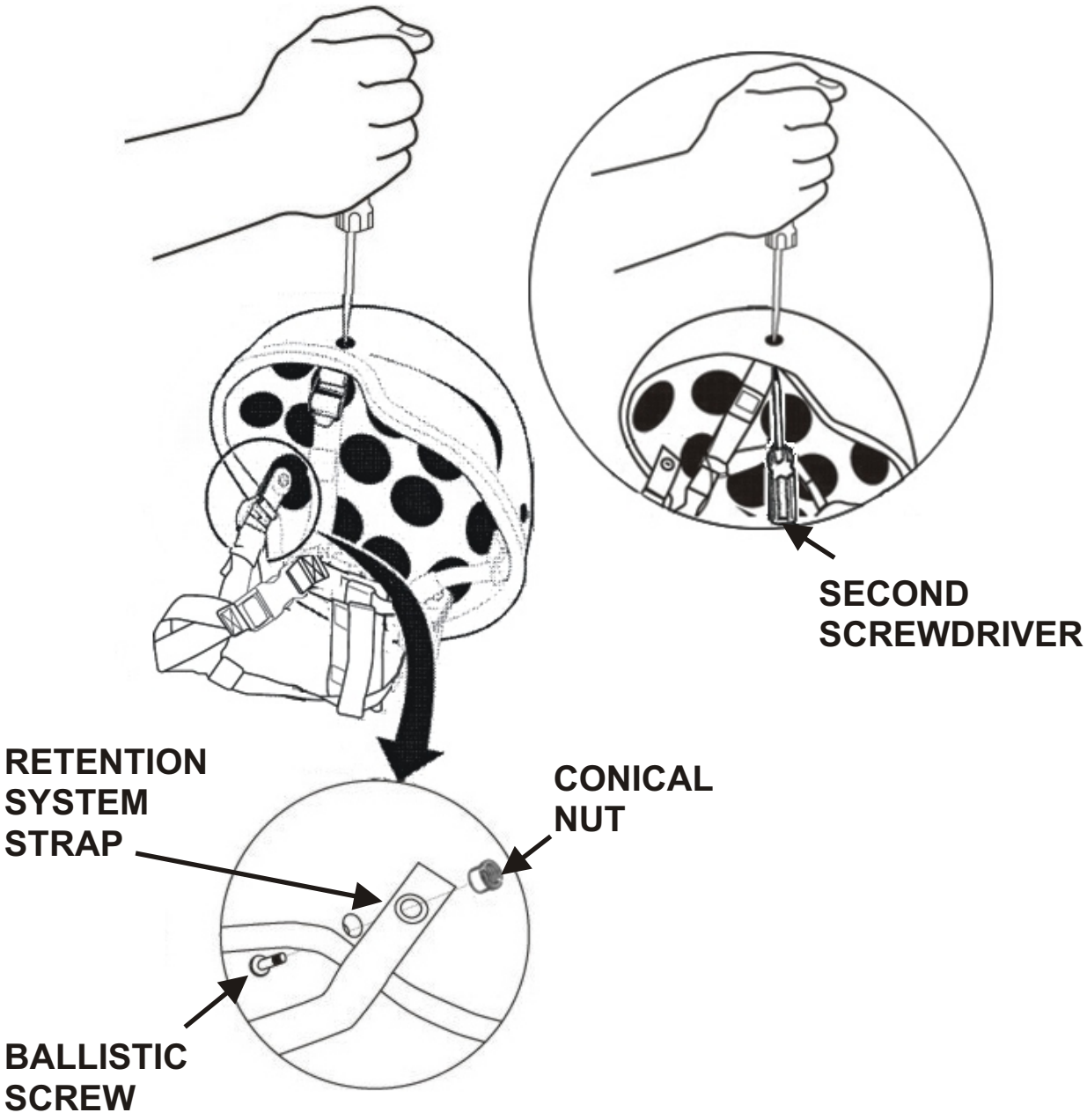
This section provides instructions for replacing the ACH's hardware (screw or nut).

NOTE

To replace hardware, use a standard flathead screwdriver. If this tool is unavailable, a coin may be used.

You may need to use a second screwdriver to hold the nut in place while you remove the screw. (See Hardware Installation illustration in this section.)

1. Remove the retention system as described in Chapter 2.
2. Remove the screw with a standard flathead screwdriver.
3. Replace screw and nut. Ensure the proper orientation hardware and retention system. (See Hardware Installation illustration in this section.) Tighten the screw to a torque of 80-100 inch-ounces, or until the nut bottoms out on the screw.
4. Inspect the screws to ensure tightness. If loosening persists, use the sealing compound (thread-locking compound; see Page 57, Expendable and Durable Items List). Follow directions on container.



Hardware Installation

END OF SECTION

MAINTENANCE PROCEDURES
REPLACING THE PAD SUSPENSION

This section provides information on replacing the pad suspension.

Replacing Pad Suspension

NOTE

On one side the pads are covered with a loop material. On the other side, the pads are covered by moisture-wicking fabric. ONLY THE LOOP SIDE OF THE PAD WILL ATTACH TO THE HOOK DISKS ON THE HELMET SHELL. Press the pad against the hook disks. The loop side of the pad is green.

1. Pull the individual pads off the inner helmet hook disks.
2. Reattach suspension pads as needed. (See Chapter 2 for Pad Configurations and Pad Suspension Adjustment.)

END OF SECTION

MAINTENANCE PROCEDURES
CLEANING INSTRUCTIONS

This section provides instructions for cleaning the ACH.

Helmet Shell

1. Clean with mild soap and water. Use a soft brush or cloth.

2. Allow to air dry.

A small brush is useful in removing dirt from the hook disks on the inside of the shell.

Chinstrap, Helmet Cover, and Pad Suspension

1. Clean with mild soap and water. Wash by hand or in machine in the gentle cycle, cold water.

2. Allow to air dry. DO NOT MACHINE DRY.

Keeping the hook and loop clean will help to maintain its ability to stick together.

END OF SECTION

MAINTENANCE PROCEDURES
PREVENTIVE MAINTENANCE CHECKS AND SERVICES

INTRODUCTION

General

Preventive maintenance checks and services (PMCS) are performed to keep the ACH in operating condition. The checks are used to find, correct, and report problems. The operator is to do the PMCS tasks shown in PMCS Table 1. PMCS is to be done before, during, and after use of the ACH.

Before you use the ACH, perform PMCS.

During use of the ACH, periodically perform PMCS.

After you have used the ACH, perform PMCS.

PMCS Column Description

ITEM – The order the PMCS should be performed and a reference number for maintenance forms. INTERVAL – Tells when the check should be performed. ITEM TO BE CHECKED OR SERVICED – Tells which items to perform the PMCS procedure on. PROCEDURE – Tells the procedure to perform. If item cannot be repaired, it must be replaced. EQUIPMENT NOT READY IF – Tells what conditions render the ACH unfit to perform the mission.

Table 1. Preventive Maintenance Checks and Services

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF
1	Before	Chinstrap Retention System	Check for: 1) Cuts, frays or other damage or loose or damaged stitching in the webbing. If webbing is frayed more than ½" or has a discernable cut, or loose or damaged stitching, refer to higher level maintenance for repair.	Chinstrap webbing has cuts, frays, or other damage.
			2) Cracked, worn, or damaged hardware (p-clamp, ladderlock, nut, screw) and buckle. Refer to higher level maintenance for repair.	Hardware or buckle is cracked, worn, or damaged.
			3) Loose screws. Tighten screws or refer to higher level maintenance if loose.	Screws are loose.

Table 1. Preventive Maintenance Checks and Services

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF
2	Before	Pads	Cuts, tears or other damage to outer fabric or inner foam. If pads are torn or cut, exposing the inner padding, replace.	Pads are torn, cut or otherwise damaged.
3	Before	Shell	1) Gouges, scrapes, cracks, delamination or other damage to shell. If gouges, scrapes, or damage extends below the surface (below the paint), refer to higher level maintenance for repair.	Gouges, scrapes, cracks, delamination or other damage extends below the surface (below the paint).
			2) Loose or damaged edge beading. Refer to higher level maintenance for repair.	Edging is excessively loose or damaged.
			3) Loose or damaged hook disks. Refer to higher level maintenance for repair.	Hook disks are damaged such that they will not securely hold the pads in place.

Table 1. Preventive Maintenance Checks and Services

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF
4	Before	Cover	Cuts, frays or other damage to the fabric or cut or frayed stitching. Refer to higher level maintenance for repair.	Excessive cuts, frays, or other damage to the fabric or cut or frayed stitching.
5	During	Chinstrap Retention System	Inspect for damaged components (see Item 1)	Chinstrap components are damaged. See above.
6	After	Chinstrap Retention System, Pads, Hardware, Shell.	Perform all PMCS steps in Items 1-4after use.	

END OF SECTION

CHAPTER 4

SUPPORTING INFORMATION

FOR

ADVANCED COMBAT HELMET (ACH)

SUPPORTING INFORMATION
REFERENCES

This section lists related field manuals, forms, technical manuals, and miscellaneous publications.

FIELD MANUALS

FM 3-5	Tactics of Chemical Warfare
FM 21-11	First Aid for Soldiers
FM 3-21.220	Static Line Parachuting Techniques and Training

FORMS

DA Form 2028	Recommended changes to Publications and Blank Forms
SF 368	Product Quality Deficiency Report

TECHNICAL MANUALS

TM 10-8400-203-23	Unit and Direct Support Maintenance Manual for General Repair Procedures for Individual Equipment
TM 11-5855-262-10-2	Night Vision Goggles AN/PVS-7B (NSN 5855-01-228-0937) (EIC: LPS) and AN/PVS-7D (NSN 5855-01-422- 54) (EIC: N/A) (TO 12S10-2PVS7-11; TM 09500A-10/1A; NAVSEA SW215-AT
TM 11-5855-306-10	Monocular Night Vision Device AN/PVS-14 (NSN 5855-01-432-0524) (EIC: N/A) (TM 10271A-10/1)

MISCELLANEOUS PUBS

DA PAM 738-750	Functional User's Manual for the Army Maintenance

END OF SECTION

INTRODUCTION

Scope

This section lists COEI and BII for the Advanced Combat Helmet to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the helmet. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the Advanced Combat Helmet in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the Advanced Combat Helmet during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) Illus Number. Gives you the number of the item illustrated.

Column (2) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (3) Description, CAGEC, and Part Number. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

Column (4) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. (Add the following only as applicable. Replace Xs with appropriate codes and model numbers.) **Column (5) Unit of Issue (U/I).** Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) Qty Rqr. Indicates the quantity required."

Components of End Item

(1) Illus Number	(2) National Stock Number	(3) Description, CAGEC, and Part Number	(4) Usable on Code	(5) U/I	(6) QTY
		Retention System 97427/05D11948-1	N/A	ea	1
		Pad Suspension System, 3/4" 97427/05C11950-1	N/A	set	1
		Pad Suspension System, 1" 97427/05C11950-2	N/A	set	1

Basic Issue Items (BII) List

(1) Illus Number	(2) National Stock Number	(3) Description, CAGEC, and Part Number	(4) Usable on Code	(5) U/I	(6) QTY
	8415-01-515-4662	Cover, Helmet, Reversible, with communication flap, size S/M 97427/04A11921-1	N/A	ea	1
	8415-01-515-4663	Cover, Helmet, Reversible, with communication flap, size L/XL 97427/04A11921-2	N/A	ea	1
	8415-01-515-4671	Cover, Helmet, Reversible, without communication flap, size S/M 97427/04D11921-3	N/A	ea	1
	8415-01-515-4672	Cover, Helmet, Reversible, without communication flap, size L/XL 97427/04D11921-4	N/A	ea	1
	8415-01-521-8806	Cover, Helmet, Camouflage, Universal Print, Non-Reversible, S/M, with communications flap	N/A	ea	1
	8415-01-521-8808	Cover, Helmet, Camouflage, Universal Print, Non-Reversible, L/XL, with communications flap	N/A	ea	1

END OF SECTION

SUPPORTING INFORMATION
EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

Scope

This section lists expendable and durable items that you will need to operate and maintain the Advanced Combat Helmet. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item.

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item (include as applicable: C = Operator/Crew, O = Unit/AVUM, F = Direct Support/AVIM, H = General Support, D = Depot).

Column (3) National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) Unit of Issue (U/I). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (3).

Table 1. Expendable and Durable Items List

(1) ITEM #	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NUMBER, DESCRIPTION, CAGEC, PART NUMBER	(5) U/I
1		5210-01-434-9493	Caliper	ea
2			Cloth	ea
3		8315-00-782-3520	Measuring tape	ea
4			Mild Soap	ea
5			Soft Brush	ea
6		8030-01-104-5392	Sealing Compound	bx

END OF SECTION

SUPPORTING INFORMATION
TOOL IDENTIFICATION LIST

INTRODUCTION

Scope

This section lists all common tools and supplements and special tools/fixtures needed to maintain the ACH.

Explanation of Columns in the Tool Identification List

Column (1) Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item.

Column (2) Item Name. This column lists the item by noun nomenclature and other descriptive features.

Column (3) National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) Part Number/CAGEC. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. The manufacturer's Commercial and Government Entity Code (CAGEC) is also included.

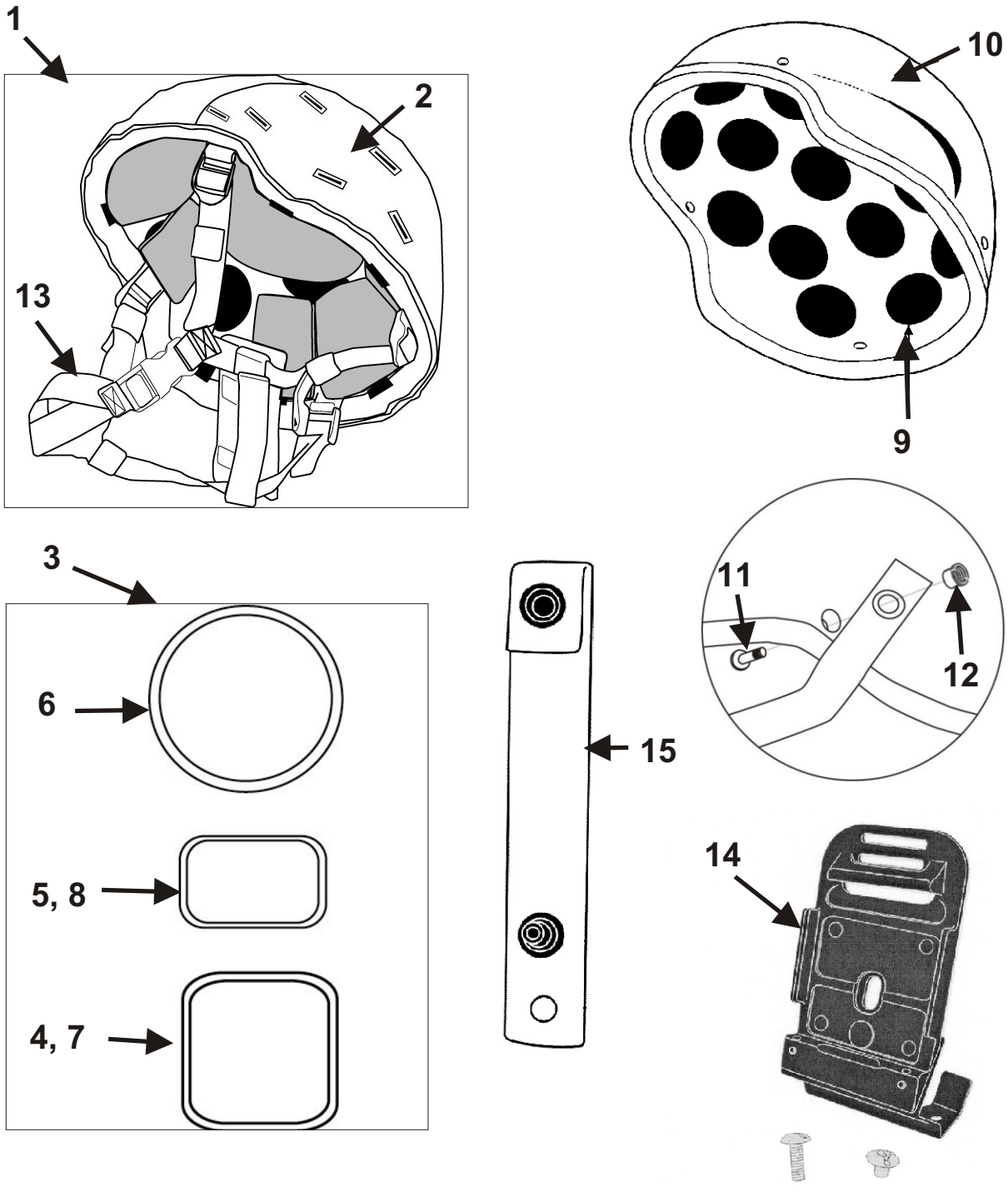
Column (5) Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this section."

Tool Identification List

ITEM NO.	ITEM NAME	NATIONAL STOCK NUMBER	PART NUMBER/ CAGEC	REFERENCE
1	Screwdriver			

END OF SECTION

SUPPORTING INFORMATION
ASSOCIATED AND REPAIR ITEMS LIST



ACH Repair Items

Associated and Repair Items List

ITEM #	NOMENCLATURE	QTY.	PART NUMBER
1	Helmet, Advanced Combat, Small	1	05D11955-1
	Helmet, Advanced Combat, Medium	1	05D11955-2
	Helmet, Advanced Combat, Large	1	05D11955-3
	Helmet, Advanced Combat, X-Large	1	05D11955-4
2	Cover, Helmet, Reversible, with communication flap, size S/M	1	04A11921-1
	Cover, Helmet, Reversible, with communication flap, size L/XL	1	04A11921-2
	Cover, Helmet, Reversible, without communication flap, size S/M	1	04A11921-3
	Cover, Helmet, Reversible, without communication flap, size M/L	1	04A11921-4
	Cover, Helmet, Foliage Green, S/M	1	04A11921-5
	Cover, Helmet, Foliage Green, L/XL	1	04A11921-6
3	Pad Set, 3/4"	1	05C11950-1
	Pad Set, 1"	1	05C11950-2
4	Trapezoidal Pad, 3/4"	2	05C11950-13
5	Oblong/Oval Pad, 3/4"	4	05C11950-12
6	Crown Pad, 3/4" Thick	1	05C11950-11

Associated and Repair Items List (Continued)

ITEM #	NOMENCLATURE	QTY.	PART NUMBER
7	Trapezoidal Pad, 1"	2	05C11950-15
8	Oblong/OvaPad, 1"	4	05C11950-14
9	Hook Fastener Tape, Velcoin	21	71206-1
10	Helmet Shell, Small	1	N/A
	Helmet Shell, Medium	1	N/A
	Helmet Shell, Large	1	N/A
	Helmet Shell, X-Large	1	N/A
11	Screw, Shoulder, 10-32	4	05B12190-1
12	Conical Nut	4	04B11815-1
13	Retention Assembly	1	05D11948-1
14	NVG Mount Bracket (includes screw and post)	1	03B11760-1
15	Eyewear Retention Strap, Camouflage Green	1	05A11945-1
	Eyewear Retention Strap, Light Tan	1	05A11945-2
	Eyewear Retention Strap, Foliage Green	1	05A11945-3
	Use and Care Manual	1	TP0271

END OF SECTION

GENTEX®
CORPORATION

www.gentexcorp.com

PO BOX 315 CARBONDALE, PENNSYLVANIA 18407 USA
p 570 282 3550 f 570 282 8555 sales@gentexcorp.com

TP0271 REV. 1 **FEBRUARY 2006**